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London to Paris without a Change

BY the launching at Newcastle yesterday of the ss. *Twickenham Ferry*, the first of three vessels being built to the order of the Southern Railway for a train ferry service between Dover and Dunkirk, an important stage in the long desired provision of through trains between England and the Continent has been completed. It is anticipated that the new service will begin to operate in the summer of 1935 and through sleeping car trains will be run between London and Paris, and possibly other Continental cities. Already designs for the sleeping cars have been drawn up. They will be generally similar to the latest vehicles of the International Sleeping Car Company, by whom they will be operated, but of course will be slightly smaller in overall dimensions, owing to the smaller loading gauge of the line between Dover and London than that of Continental railways. Nevertheless, by careful arrangement they will provide nine roomy compartments, each equipped with two berths. First class passengers will have the exclusive use of a compartment which would be occupied by two second-class passengers. If it can be arranged for the customs examinations to take place on the trains in the early stages of the journeys, so that by the time the Channel port is reached passengers can be peacefully at rest in their warm beds, these services should go far to remove the terrors of the Channel crossing, and it is to be hoped that the enterprise of the railway administrations concerned will be duly rewarded.

The Late Mr. Frank Tatlow

It is with great regret that we have to announce the death on March 13 of Mr. Frank Tatlow, the last General Manager of the former Midland Railway Company. Mr. Tatlow was "Midland through and through." His father and two of his uncles were Midland men, and he himself spent nearly 48 years of his working life in the company's service. Therefore he could not contemplate railway work except under the banner of the Midland Railway Company, and on the eve of its amalgamation into what is now the London Midland & Scottish Railway, he retired from the chief-executive office which he had held since 1918. His railway career, however, by no means came to an end in 1922, because in the following year he was appointed to represent the larger company on the Cheshire Lines Committee and also as a member of the Northern Counties Committee (Ireland), retaining these appointments until his death. He was also on the boards of five other non-railway companies. All through his life Mr. Tatlow was a hard and enthusiastic worker and inspired others to give their best service. He had a great experience of Parliamentary business when attendance at railway Bill committees was a much more important matter for railway officers than it is now. His directors had the fullest confidence in him and greatly valued his fine qualities. We publish on another page a personal appreciation of Mr. Tatlow by Sir Guy Granet, who was closely associated with him first as General Manager and later as Chairman.

* * * *

The Week's Traffics

Passenger train earnings of the four group railways for the past week were slightly down, but improvements continued in other classes of traffics which are up for the year to date for all companies. For the four companies together the receipts from general merchandise for the 10 weeks to date show an increase of £1,314,500, coal traffics have improved to the extent of £269,500, and passenger train receipts show a net improvement of £128,000. The aggregate increase in traffics of the four companies for the 10 weeks amounts to £1,712,000. London Passenger Transport earnings for the past week were £513,900, bringing the total for the 36 weeks to £17,902,600. Belfast & County Down traffics continue to show steady improvement with an increase of £85 for the week and of £696 for the year to date. The Great Northern's weekly increase of £14,000 compares with the strike period of 1933, and its improvement for the year to date has reached £71,600. A slight set-back of £1,974 was experienced last week by the Great Southern.

	10th Week				Inc. or dec.	
	Pass. &c.	Goods, &c.	Coal, &c.	Total.	Year to date	
	£	£	£	£	£	%
G.W.R. ..	– 1,000	+ 18,000	+ 3,000	+ 20,000	+ 245,000	+ 5·90
L.M.S.R. ..	– 1,000	+ 39,000	+ 9,000	+ 47,000	+ 662,000	+ 6·56
L.N.E.R. ..	– 3,000	+ 35,000	+ 20,000	+ 52,000	+ 692,000	+ 9·39
S.R. ..	– 1,000	+ 2,500	+ 1,500	+ 3,000	+ 113,000	+ 3·58

* * * *

Great Southern Meeting

The most satisfactory feature of the proceedings at the annual general meeting of the Great Southern Railways Company in Dublin last Friday was the improvement in the co-ordinated road and rail services which have brought considerable additional traffic to the railway. Passenger train traffics suffered by comparison with a year which included the Eucharistic Congress, although there was a great development in short distance journeys, and goods and live stock receipts were affected by the depression in the earlier part of the year and by tariff

difficulties. In the operating departments expenditure was kept well in hand, judicious increases being at the same time made in maintenance outlay. The road transport legislation of the Free State Government has already benefited the company and appears likely to do so still more, whereas the railway legislation has done the opposite. It has made it more difficult for the company to abandon unprofitable lines and services, has re-imposed the burden of the baronial guarantees, has saddled the company with heavier superannuation and pension payments, and has arbitrarily cut down the capital, besides reducing the number of directors to seven and introducing a cumbersome and expensive system of voting for directors by ballot. Protests by shareholders against the reduction of capital were naturally strong, but it was clearly proved to have been due to Government action alone. The present year is, however, likely to show considerable improvement, as earnings are increasing week by week.

* * * *

Overseas Railway Traffics

Of the four principal Argentine railways the Buenos Ayres & Pacific has been the most successful during the past fortnight in the matter of traffic increases. Its gain in receipts in the two weeks has been £28,000, thus reducing its aggregate decrease for the year to date to £122,000. The Buenos Ayres Great Southern is still £14,000 ahead on the year, but its gain of £16,000 for the 35th week has been largely offset by its decrease of £11,000 for the 36th week. There has been an improvement of £5,000 in the aggregate takings of the Central Argentine Railway, whose decrease for the year is now reduced to £708,000. Canadian Pacific traffics continue to advance, having improved in the past fortnight to the extent of £126,200. Its net earnings for the month of January, 1934, show an increase of £113,200 over those for January, 1933. Traffics of the Entre Rios Railways for the 36 weeks of the current financial year have advanced by £10,500.

Railway.	No. of Week.	Weekly Traffics.	Increase or Decrease.	Aggregate Traffic.	Increase or Decrease.
		£	£	£	£
Buenos Ayres & Pacific	36th	140,000	+ 10,000	3,717,000	— 122,000
Buenos Ayres Great Southern ..	36th	262,000	— 11,000	7,197,000	+ 14,000
Buenos Ayres Western	36th	75,000	—	2,300,000	— 110,000
Central Argentine	36th	175,000	—	5,922,000	— 708,000
Canadian Pacific	9th	455,000	+ 58,200	3,963,200	+ 611,800
Bombay, Baroda & Central India	48th	199,875	+ 26,700	7,289,250	+ 267,900

* * * *

Air versus Rail

A striking comparison between the relative reliability of air transport and rail transport is made in a recent issue of our American contemporary the *Railway Age*. This journal has offices in both New York and Chicago, and has made constant use of the Twentieth Century Limited and the Broadway Limited expresses between these cities for important inter-office correspondence. "Not in memory," we read, "has the mail ever failed of delivery on the day following its dispatch." The air mail has also been used extensively, but its average of punctual delivery has failed to reach 75 per cent. "In spite of advances made by air transportation, therefore," the editorial continues, "the minimum time interval which separates New York and Chicago continues to be, for all practical purposes, 17 hours and 45 minutes, the running time of the Century and the Broadway." And it is not merely in reliability, or even in comfort, that the railway enjoys a superiority in these days. By the use of so speedy a unit as the Flying Hamburger, the German State Railway transports the business man from the heart of Berlin to the heart of Hamburg at an average speed of 77½ m.p.h. It is doubtful if the air, relying as it must on the roads between the centres of these cities and the suburban aerodromes before the beginning and after the end of the air journey, can in such conditions offer any advantage even in speed.

* * * *

Front Seats in Railcars

Motorists often go out to experience the thrills of speed or to gaze around at scenic beauties, but on fine days their pleasure is usually marred by the need for watching constantly the movements of cars in front, or for circumventing eccentric cyclists. Much motoring often gives one at last a sense of frustration and a hopeless hatred of one's fellow man. Jaded road users should book front seats for a journey in one of the lighter railcars now running on railways here and abroad. To anyone not familiar with the engine driver's outlook a long ride at an even 50 to 60 m.p.h. with a front view and all fear of danger removed is an unforgettable experience, more like a dream of paradise than an actual passage through this world of snags. The fussless and smooth approach to blind places like tunnels and stations at the 88 f.p.s. pace, and the absence of scattering hens or humans as one flies through railway villages suggests most powerfully that chaos must be giving way before order after all. To get out of the railcar into the automobile is a step from the sublime to the ridiculous, for the progress of the latter, hindered as it is by anything and everything, including signals which obey laws of their own irrespective of whether the road be blocked or clear, seems slow indeed. However, the tonic effect of a railcar ride is such that one laughs rather than weeps if in the end one must leave the railway for the snailway.

* * * *

Steam-Heat Limitations

Some interesting experiments in connection with the steam-heating of lengthy passenger trains are dealt with in the January issue of our American contemporary, the *Railway Mechanical Engineer*. It has been observed that a drop in pressure of approximately 20 lb. per sq. in. occurs between the pressure reducing-valve on the locomotive and the connection at the rear of the tender; and, further, that to ensure a flow of steam throughout the train, the pressure at the end of the last coach must not be less than 5 lb. Between cars the loss varies according to the outside temperature and the speed of the train, increasing rapidly as the speed rises; the variation is from 12 to 20 lb. per car of the ordinary American 70 ft. day-coach type. In severe weather conditions, when steam-heat consumption rates may reach 350 lb. per car per hour, the present 2-in. dia. steam-heat pipe-line has been proved adequate only for the efficient heating of a 12-coach train; should the train-load rise to eighteen coaches, which is a figure by no means unusual in modern American practice, not more than 225 lb. of steam per car-hour can be handled by present standard steam-heat connections. Winter temperature conditions in the North American Continent are, of course, much more severe than those of this country, while the cars are of considerably greater internal capacity than that of British rolling-stock.

* * * *

The Death of Colonel Anderson

It is with regret that we have to record in our Personal columns the death, at the early age of fifty years, of Lt.-Col. Edward Philip Anderson, one of the Inspecting Officers of Railways at the Ministry of Transport. Though there have been Inspecting Officers of Railways for over ninety years, only once previously has one been removed by death and that was Sir Francis Marindin, who died just 34 years ago. Practically all, if not all, the holders

of this important office have gone there from the Royal Engineers and with, as far as we remember, three other exceptions, have remained until they reached age limit; one of the three exceptions resigned to enter a commercial life, the second retired owing to ill-health, and the third to join a British railway. Colonel Anderson's removal will be greatly missed by the railway officers with whom he has worked so amicably for the last five years. But his departure will be felt most by his colleagues, who formed a very happy unity, sharing the work to be done. They have our deepest sympathy.

* * * *

Continuous Cab Signalling in France

The decision of the French State Railways, briefly reported in our news columns last week, to adopt continuous cab signalling in connection with the automatic block system between Caen and Cherbourg is an important event in the development of signalling on the Continent, where the installation is the first of its kind. It is probable that few railway officers here realise the extent to which this type of signalling is used on the other side of the Atlantic. The Pennsylvania Railroad alone, for instance, has over 2,300 locomotives and some 2,800 track miles fitted with it, while several other lines have large installations. The idea of continuous cab signalling is not new, but it is the advance of electrical knowledge in the last twenty years which has at last converted it into a really practical proposition. It can be used with or without automatic train control. On some American railways the wayside signals, except at interlocking plants, have been removed where this form of signalling is in use, but it is doubtful whether such a course will find favour on European lines in existing circumstances, for a breakdown of the cab apparatus would practically deprive the driver of signals for the rest of the journey. The great merit of the continuous cab signal is that it communicates to the enginemen directly any change in the conditions ahead, regardless of weather and limitations of visibility. It is probably the most effective weapon which modern science has placed at the disposal of the railwayman in his fight against the great enemy, fog. Of all known cab signals the continuous type must, we feel, be regarded as the most truly scientific.

* * * *

Briquettes as Fuel

Although the use of briquettes in conjunction with ordinary coal as a fuel for locomotives is extensive in various countries (the proportion carried in the tender being roughly as one is to ten), the exclusive use of such fuel is comparatively rare. With a view to reducing the losses arising from unburnt fuel and heat in the smokebox gases, and to assist in obtaining smokeless operation, the Japanese Government Railways is now introducing, for use in different classes of locomotives, briquettes made up from national coals. The actual improvement in operation has more than come up to expectations, and almost 140,000 tons of briquettes were consumed last year on the Government lines. The use of this fuel is to be extended to tunnel and other sections where the smoke and spark nuisance had previously caused electrification to be seriously considered. The shape and size of the briquettes are important, and the Japanese authorities have standardised an egg-shaped unit with a weight of 40 to 80 grammes. The volatile content varies with the different coals used, a maximum of 30 per cent. being specified for express trains working and over tunnel sections, and so far as Japanese coals are concerned, maximum steam generation is obtained with a volatile content of 25 to 30 per cent. Honeycombing troubles appear to have been overcome, and it is anticipated that in a few years the briquette consumption will amount to about 20 per cent. of the $2\frac{3}{4}$ million tons of coal burned annually by the locomotives of the Japanese Government Railways.

* * * *

Simplicity in Locomotive Design

British locomotives are traditionally neat and clean in outward appearance, shorn as they are almost entirely of excrescences to break up the harmony of their outline; only when it is desired to fit extra equipment, such as pumps, feed-water heaters and so forth, is there any noteworthy departure from this rule. Before locomotives had assumed their present-day size and power there were designs the plainness of which was marked by almost extreme simplicity, such as the single-driver type with inside cylinders which, but for the balance weights in the driving wheels, appeared when travelling at speed to be gliding. Continental and American engineers have for the most part taken the opposite line, and there is a good deal to be said on practical grounds to justify them. Accessibility plays an important part in locomotive maintenance, for much time can be wasted in dismantling and afterwards replacing component parts, the actual adjustment or repair of which may occupy only a matter of minutes. True, a foreign locomotive, with its multiplicity of boiler fittings, pipes and connections loses something in comparison with British design on the score of symmetry and neatness, and it may be that there are, particularly during certain seasons, losses of a more serious kind due to the exposure to the atmosphere of steam and water piping, and increased wind resistance. Generally speaking, however, it remains true that too high a price can be paid for what may sometimes be regarded as excessive neatness—another way of describing the stowing away out of sight and reach of parts and fittings which may at any moment call for examination and repair.

* * * *

Locomotive Accidents in America

Our American contemporary the *Railway Mechanical Engineer* in its January issue devotes attention to the report of the Chief Inspector of the Bureau of Locomotive Inspection to the Interstate Commerce Commission and concludes with the remark that " locomotive conditions in the United States are approaching the danger point." The percentage of steam locomotives inspected and found defective had until recently been declining steadily for several years, but for the past fiscal year it rose to 10 per cent. The number of locomotives ordered to be taken out of service, the total number of defects found, the number of accidents and the number of casualties have all increased within the period covered, although the number of locomotives for which reports were filed and the number inspected were the smallest for any year. The number of accidents caused by failure of steam locomotive parts increased from 145 to 157, or 8·3 per cent., and the number of resulting casualties increased from 156 to 256, or 64·1 per cent. The report does not actually indicate an immediately alarming increase in the number or nature of the defects, accidents or casualties, but some apprehension, our contemporary remarks, may well be felt from the fact that for the first time since 1923 the trend has reversed and the conditions are definitely worse than for the preceding year. In view of the above the reference made in a following article to the necessity of reducing the cost of repairing locomotives is significant. It has been stated before and is worth stating again that more money has been spent on the railways of the United States for repairing locomotives than for any other single item of operating expense, and, because of this, locomotive repair costs should logically demand the greatest attention in an effort to reduce them.

One Hundred Years of Railway Coaches

IN opening his paper entitled as above and read before the Institution of Locomotive Engineers on Thursday last, the author, Mr. A. N. Moon, B.Sc., submitted that the subject of railway coach evolution is as interesting in its way as the history of the steam locomotive, and we are inclined to agree with him. Perhaps the locomotive is more fascinating to most people than the railway coach and certainly very much more has been done to encourage interest in the one as compared with the other. It is, therefore, refreshing to have at our disposal the short and well arranged survey represented by Mr. Moon's paper. Whilst it may be true to say that the vehicles used on the early tramways which preceded the railway are to be regarded as the ancestors of railway rolling stock, it must not be forgotten that the primitive tram-way had no rails, the vehicles running instead on broad baulks of timber. The first use of iron edge rails and flanged wheels was that of a 1789 tram-way in Leicestershire. When, in 1825, the first public steam-operated railway was opened between Stockton and Darlington the carriage of passengers was not regarded as one of its principal objects. The Leicester and Swannington Railway in 1832 had in use a vehicle, or vehicles, resembling a modern high-sided goods wagon with a door on vertical hinges and without spring buffers, and in the following year the same company constructed what is believed to have been the first composite coach. In this, the first class compartment was in the centre with an open second class compartment at each end, the latter being roofed over but minus closed ends or sides. By the year 1833 the Liverpool & Manchester Railway was running first and second class accommodation in vehicles which represented the best coach building practice of the day. Most of them were built by private firms whose chief business was still the manufacture of road vehicles, and partly as a result of this and partly, no doubt, to lull the fears of a conservative public, the railway practice was made to conform as closely as possible to that of the road. The first class coach was assembled by placing together as many ordinary coach bodies as the frame would accommodate, thus affording a number of inside seats. The second class passengers had always been accustomed to travel exposed to all the inclemencies of the weather, and in these trains they were provided with much the same accommodation, with the addition sometimes of an awning.

It was not until 1838 that accommodation was introduced for third class passengers and even then they were regarded in a very greatly different light from that which obtains to-day. In the vehicles of this class used on the Manchester & Leeds Railway such passengers travelled in open trucks without seats, the sides of which were 4 ft. high and the overall length and width 16 ft. 9 in. and 7 ft. respectively. As no protection against the weather was provided it was necessary to bore holes in the floor in order to drain away the rain water. The more progressive railways shortly afterwards introduced covered accommodation, but the third class was still very poor and the use of open carriages persisted until well on into the 'fifties. It is well known that the Government in those early times obstructed the development of railways in many ways, and one restriction which was not repealed until 1842 was the limiting of gross tonnage of all vehicles to 4 tons. However, by the middle of last century a good deal of progress had already been made, and the first class coach of the period was quite comfortable according to the standards then prevailing. Well upholstered seats were provided with easy cushions and loose rugs, and the compartments were lighted by two oil lamps. One coach of three compartments carried 18 passengers and cost about £380. Second class coaches were not as yet provided with upholstered seats and accommodation was more cramped than in the first class. The third class traveller was still neglected, but practically all the railways had abandoned the open type of vehicle and Parliament in 1844 insisted that one train a day should be provided with covered third class accommodation and it was not long before this became general. The practice of placing luggage on carriage roofs and providing seats for guards in equally exposed places was abandoned by the London & Birmingham Railway in 1845 and fell into general disuse before 1870. Considerable advances were made in the years immediately following 1870. By 1872 the Midland Railway third class compartments had been increased in width to 6 ft., and the first class to 7 ft. 3 in., and in the following three years the second class was abolished altogether, the third class being then further improved by the provision of cushioned seats and backs. One lamp still did duty for two compartments, a partition being cut to accommodate the fitting.

Dealing with sleeping accommodation, Mr. Moon states that first-class cars were introduced in 1873 on the East Coast route, their appearance leading to some criticism at the time. Sleeping cars of the Pullman Company of America commenced running in the following year on the Midland Railway and continued in service until 1888, and the same company provided cars for the Midland Railway of the "parlour" or "drawing-room" type. These were introduced in 1874 and constituted an important step forward as being the first bogie coaches run in this country. Although on special occasions meals might be served on trains no regular service of meals was carried out until 1879, when some attempts in this direction were made by the Great Northern Railway. The author adds that the first vestibule dining car built for the purpose is believed to have been that introduced on the Midland Railway in 1882 by the Pullman Car Company, the facility being restricted to first class passengers. An interesting example of an early railway-owned dining car was that built in 1893 for the joint stock of the Midland and Glasgow & South Western Railways.

Early trains were braked by the use of special brake vehicles, each with its own guard, but this division of responsibility was found to be somewhat unsatisfactory and as the speed of trains and the density of traffic increased there was an urgent demand for some type of continuous brake. In 1870 the Midland Railway adopted a type of vacuum brake which, however, was not automatic in action, and George Westinghouse brought out an improvement of his compressed air brake in the following year, making it automatic. Hydraulic and chain brakes were also used or experimented with in varying degrees, and in 1875 the Board of Trade instituted the classic brake trials at Newark. These proved finally the supremacy of air brakes over hydraulic and other systems. In 1857 or 1858 the Great Western Railway experimented in the use of coal gas for lighting and a more satisfactory illuminant was finally found in oil gas, which by 1881 was widely used. Curiously enough, the same year saw the first experiments in train lighting by electricity, a train on the London Brighton & South Coast Railway being successfully lighted by accumulators. In 1887 electric train lighting had become fairly general on the L.N.W.R. Warming apparatus was non-existent in the early years of railway travel, and although at as early a period as 1856 patents were taken out for continuous steam warming apparatus, it was not until 1880 that foot warmers were introduced. Many attempts were made to get a satisfactory continuous system, and in 1884 steam heating by low pressure steam from the engine was introduced. The steam was under pressure in the radiators and any leaks were

liable to fill the compartment with steam. In these days when "all steel" is such a familiar term in connection with railway coach construction it is interesting to note that a patent for constructing railway coaches made entirely of iron was taken out in America in 1854. The latest types of third-class passenger coaches on the British railways, with their three-a-side armchair seats and other luxury appointments, provide as marked a contrast between the practice of to-day and that of a century ago as does the comparison of the newest locomotives of 1934 and their predecessors of the 1830 period, and Mr. Moon, by emphasising this in his paper, has provided both a thoughtful and a valuable reminder.

* * * *

An Operating Officer on Light Signalling

THE engineering details of colour light signalling have been discussed from time to time when papers have been read by signal engineers, but the special case of the operating department has not hitherto had much of this sort of ventilation. Consequently, the well reasoned paper read by Mr. C. M. Jenkin Jones last Monday before the Institute of Transport was of special value. The task of the signal engineer is to place his technical knowledge at the service of those who have to run the trains, and it is of first importance to him, therefore, to know what they think and what it is they want. The London & North Eastern Company having recently opened one of the most important colour light signalling installations in this country on the division under his care, Mr. Jenkin Jones was able to base his paper on actual experience gained with it, and the way in which he marshalled his facts and arguments showed how comprehensively he had thought round his subject. Mr. Jenkin Jones did well to disperse the haze of mystery in which multiple-aspect signalling is apparently still shrouded in the minds of some railway officers. He showed that its principles were simple and quite easy to grasp. It may safely be asserted that they would prove of little practical service to the railways if they were not. Anything can be overdone, of course, and the warning in the paper against any tendencies to create more signal aspects than are called for by the strict requirements of safe and expeditious working was fully justified.

While not wishing to place obstacles in the path of progress by standardising prematurely, Mr. Jenkin Jones rightly emphasised the need for aiming at some universal code of aspects for colour light signals in this country. Experience in America has proved how difficult of attainment standardisation is. In spite of the efforts of official bodies, several codes of light signal aspects are in use there, as well as at least three different sorts of light signal. The marker light, which originated in the State long before light signals came in, and for purposes, quite other than its advocates here now propose, is still a matter for disagreement, although American light signal installations far exceed in extent anything to be found in Europe. Mr. Jenkin Jones advocated the route signalling principle for running junctions and the elimination of coloured lights from shunt signals. We are in sympathy with both these proposals and, in regard to the latter, Mr. Tattersall, who has been responsible for the York-Northallerton scheme, made a good point, in the discussion following the paper, when he showed how it might eventually be found advisable to place the light signals for running lines on the ground. Such a step would necessarily rule out the use of colours in shunt signals, if confusion was to be avoided.

It was inevitable that the stop and proceed rule should come in for discussion, and it may be recalled that the Paris Metropolitan provides a Neon lamp indicator at its signals* which, if the light is extinct, or showing red, can be consulted to show if the "Proceed" control is established. Mr. Barrington-Ward and Mr. Mauldin dwelt on some important points connected with train working and had a good word to say for the signalman, now menaced by an ever increasing automaticity. The former pleaded for splitting distants to remain in light signalling, so supporting Mr. Bounds' code of aspects on the L.M.S.R. in this respect. Mr. Challis, in defending the ability of the signal engineer to provide any kind of signal asked for, begged traffic officers to agree, and to make their requirements known, but the reply this called forth from Mr. Hally of the Underground was a demand for 100 per cent. reliability in signal apparatus, given which the traffic officers would shoulder all the responsibility for delays!

No cause, however good, can be served by exaggeration, and the cause of colour light signals is no exception. The strong lights such signals give are undoubtedly a help in bad weather, but it is the multiple aspect feature which, when applied to colour light signals, contributes as much as anything to their success. The fog difficulty, nevertheless, remains, as several speakers at the meeting testified, sufficiently to hamper materially the running of trains, in spite of powerful signal lights which, as marine signalling experience proves, cannot be expected to pierce a dense fog to the extent necessary to eliminate delay. Mr. Jenkin Jones himself defined the ideal signal system as one which placed no unnecessary restriction on the progress of a train. This implies that a restriction must be removed the moment it is no longer required. After passing a caution signal the driver can often, in clear weather, see the next signal so far off that as soon as the restriction is removed he can resume normal running. This is impossible in fog, and it becomes one of the chief sources of delay. The success of fog repeaters on the Underground and on main lines in Belgium before the war proves this beyond question.

Now although Mr. Jenkin Jones, for excellent reasons, made no reference to cab signalling or automatic train control, his paper, nevertheless, as all such papers must do, leads inevitably to the wider subject. If we are to conquer the fog difficulty, in doing which we should establish the definite superiority of rail over road transport, we must do more than make the signals just a little more visible. We must make them visible all the way along; in other words, we must come, sooner or later, to the continuous signal in the cab, right in front of the driver at every instant of the journey. It may well be that the light signal, which we may grant to be the most perfect form of visual signal outside the cab, represents but a transition to a still more complete ideal. Mr. Jenkin Jones spoke of the value of approach lighting and of the very real danger of the driver reading past his own signal to one applying to another train. The powerful concentrated lights of modern signals have increased, rather than diminished, a risk that has always existed and which, when it is greatest, approach lighting cannot remove. But no driver can see the signal in another driver's cab.

THE ROYAL SCOT TRAIN.—After having been on an exhibition tour of five different countries over a period of nearly a year, during which it has visited 103 cities and towns and has been inspected by 4,009,744 people, the Royal Scot train is returning to ordinary service on the L.M.S.R. With the completion of its last public exhibition in Scotland, the Royal Scot has finished its home tour.

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* See the article describing the signalling of this line in THE RAILWAY GAZETTE of November 3, 1933.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of Correspondents)

Travel Films

Great Western Railway
Paddington Station, W.2, March 12

To the Editor of The Railway Gazette

Sir,—I read with interest the editorial note on travel films contained in your issue of March 9, and was glad to see that the use of such films was endorsed by The Railway Gazette.

With regard to the remark that "much more could be done by the railway companies . . . to 'project Britain' pictorially," I am glad to be able to inform you that the Great Western Railway Company has recently launched three travel films, synchronised with running commentary and suitable music, entitled "Dawdling in Devon," "By Cornish Coasts" and "Wandering by the Wye" respectively, and that they are finding considerable favour with the cinema theatres throughout the country.

Yours faithfully,
G. E. ORTON,
Publicity Agent

[We made appreciative reference in our issue of January 12 last to the three fine G.W.R. topographical films.—Ed. *R.G.*]

The Signal Engineer's Department

Boston Manor,
Brentford, Middlesex.
March 6.

To the Editor of The Railway Gazette

Sir,—I have read with much concern the letters about the Signal Engineer's Department. It appears to me that such correspondence opens up another angle on the subject which is vital. Although your first correspondent speaks of status and independence, he having presumably reached the summit, the position of the younger men, ready and willing to take an active part in the profession of signalling, is perhaps even more serious. What chance have they of obtaining appointments or promotion? At home the signal departments are full up, and the colonial and overseas railways are not only not considering additions, they are even reducing.

The Institution of Railway Signal Engineers' motto is: *Sena phero telauges* ("I bear a shining sign or signal"). I'm afraid the institution is allowing this signal to become dim. How true were the remarks of Mr. Raynar Wilson when he read a paper to the Institution of Railway Signal Engineers in 1930 on the "Training of a Signal Engineer." He said: "Signalling is at long last really recognised as a very important part of railway operation. Signal engineers have been aware of this fact for a very long time, but it has not been so readily recognised by the other railway departments, with the result that the Signal Department has usually been the Cinderella."

Yours faithfully,
A YOUNG SIGNAL ENGINEER

Great Portland Street,
London, March 8

To the Editor of The Railway Gazette

Sir,—Immunity from danger, disaster and accidents is provided by foolproof signalling which allows the human factor to control and operate trains with safety and security. Signalling apparatus is so designed that given proper maintenance and treated with good care restricts the human factor to working to given moves which are so set up that it is well nigh impossible for the apparatus and the human factor to fail at the same time. Cases are very rare where the coincidence has happened. The human factor has been known to fail, but the apparatus has prevented failures and accidents resulting. Likewise the apparatus has failed, but the human factor has been aware of it and made precautions accordingly. Therefore it is only right that the signalling apparatus should be first class and maintained to the highest standard, thus giving every cause for safety and confidence.

Then again the human factor must be highly trained and thoroughly experienced, so giving a high safety factor besides the high standard of efficiency, good operation and adaptability. It is unfair to expect good apparatus to function correctly when only maintained in a very cheap manner. In the same way as it is unwise to expect the human factor to function correctly if it is only managed by inexperienced officers possessing a meagre knowledge of signalling and railway practice, if any.

To conclude, I must say I am disgusted with the managements who control railways allowing non-signalmen non-railwaymen to practise and interfere with signalling apparatus which is vital to railway security.

Yours faithfully,
H. HARRISON

A Suggestion for Simplified Train Services

285, Kingston Road,
Merton Park, S.W.20.
March 3.

To the Editor of The Railway Gazette

Sir,—With a view to simplifying the railway system of this country I have formulated a plan whereby it would be possible, by a reconnection of existing branch lines, to put, for example, Burton-on-Trent, Birmingham, Worcester, Gloucester, and Swindon, each within three hours by rail of Hunstanton, Norwich, Ipswich, Colchester, and Southend. The necessary principle is to establish "hour-stations"; an express train or railcar proceeding from hour-station A, every hour at the precise hour, to arrive at hour-station B five to ten minutes short of the hour, giving it that time at B before proceeding onwards to C. Stopping trains would do the hour-section A-B in fifteen minutes short of the two hours.

The hour-sections required for the example already mentioned would be as follow: To Woodford from Burton-on-Trent 53 miles, from Birmingham via Stratford 49, from Worcester 51, from Gloucester 60, from Swindon 58; then from Woodford to Cambridge 63; finally from Cambridge to Hunstanton 56, to Norwich 66, to Ipswich 54, to Colchester 45, and to Southend 62. It will thus be seen that the West of England lines all converge upon Woodford, and those of the East upon Cambridge; the line between Woodford and Cambridge being a common link. To realise these distances and make these connections requires a total of 45 miles of new single line. Considering the vast improvement in timings over such an area, one may fairly say only 45 miles. It would be necessary to reconstruct entirely Cambridge and Woodford stations to meet the problems presented by the convergences at these points.

High-speed railcars would hardly need to exceed a maximum of 90 m.p.h. in order to accomplish the above hour-sections; with bad curves all cleared away and there being no conflict with the main line services, an hour-express having once attained 90 m.p.h. (equivalent to 270 ft. potential height) would have enough momentum to carry it with little delay over undulations in the profile. The hour-sections given would mostly be single line, as the train working would require only a few miles of double line in the centre of the section to enable the hour-expresses to pass at speed.

I am publishing a map and pamphlet, showing a scheme of hour-sections covering the entire country, entitled "Transport Reform in Great Britain," price 1s. post free, from the above address.

Yours, &c.,
J. F. POWNALL

PUBLICATIONS RECEIVED

The Directory of Shipowners, Shipbuilders, and Marine Engineers, 1934. 32nd edition. Compiled under the direction of the Editor of *Shipbuilding and Shipping Record*. Published by The Directory Publishing Co. Ltd., 33, Tothill Street, Westminster, S.W.1. 8½ in. × 5½ in. 800 pages. Price 20s. net.—One of the most important changes in the merchant fleets of the world has been the revision of the load lines of ships and the increased carrying capacity obtained thereby. The latest edition of this directory indicates, by comparison with previous years, the scope of these alterations, particularly in the case of general cargo ships and oil tankers. Other features of the new edition include the complete revision of the personnel of shipping and shipbuilding companies, the inclusion of departmental heads in addition to directors being particularly useful for business calls.

There are, within the compass of 800 pages, more than 25,000 references, all carefully indexed, both under the names of the companies (alphabetically and geographically), the names of the individuals and the names of the ships. There is also an index of telegraph addresses.

In addition to the features already mentioned, the directory gives information as to the ownership of any specific vessel, who built the ship and who constructed the engines, and what are the tonnages, the draught, speed and so on, as well as the year of its going into commission. The directory further fulfils the requirements of those who desire statements of the capacities of the various shipyards. Another section gives details of the personnel of the Government Departments which have associations with the industries concerned, as well as of the classification societies.

Additional matter includes lists of consulting marine engineers and naval architects and societies, associations and federations connected with shipping and shipbuilding. The compilers, nevertheless, keep the book a handy size for ready reference.

G.W.R. "Holiday Haunts," 1934—The fact that such a large number of the fifteen hundred stations on the G.W.R. serves a holiday resort perhaps explains the massiveness of this popular sixpenny guide book—1062 pages all told—and the wonderful variety of its contents. Compiled by Mr. Maxwell Fraser, F.R.G.S., this year's publication is more comprehensive than ever. England, Wales, the Channel Islands and the Isle of Man are all adequately and picturesquely covered, and the prospective holiday-maker will find not only a vast amount of general information as to features of interest but also many well-arranged particulars relating to apartments, boarding establishments, hotels, farmhouses, estate agents, &c. The work is divided into seven sections, and each section is prefaced by a pleasing full page illustration in colours of some typical scene. The areas embraced in these sections are clearly outlined in a sketch map showing the G.W.R. holiday lands and there are, in addition, full page maps of Cornwall, Devon, Dorset, &c. But the guide book's chief charm, as before, is its wonderfully fine collection of photographic illustrations, usually two on a page, which are delightful to contemplate. This year's coloured front cover is amusing as well as artistic and will no doubt help to increase the demand for this popular publication.

"Holidays by L.M.S."—An L.M.S. Railway holiday ticket is the "open sesame" to the romantic grandeur of the Welsh mountains or the Lake District—to the glories of the Highlands, the rollicking Lancashire coast and to countless happy beaches. The traveller has only to take his choice—and the avowed purpose of this sixpenny "hardy annual" is to help him to do so. The picture section of the book remains, as heretofore, its greatest attraction. Its variety is certainly charming and the "human" note struck in many of its full-page photographic illustrations combined with their scenic attractions should make an irresistible appeal. The letterpress is very readable—and not overdone as is sometimes the case in popular guide-books. The opening pages contain many interesting and useful facts concerning various L.M.S. activities—such as hotels, restaurant car services, sleeping car accommodation, reservation of seats and compartments, and road excursions in holiday districts. Each of the sections has its own map and each contains much useful matter relating to local accommodation, accompanied by notes on such important points as sea views, bus services, garages, golf links, fishing, boating, &c. A large folding map of England and Wales is included in the volume. The attractive coloured cover of "Holidays by L.M.S." will be a bright feature of the bookstalls this summer.

"Holiday Handbook," L.N.E.R.—This L.N.E.R. handbook is divided into four sections, viz., Eastern Counties; Yorkshire; Northumberland, Durham, and the Lake District; and Scotland. Each is complete in itself and the descriptve letterpress is accompanied by many artistically chosen illustrations. The pictorial effect is heightened by the use of an ink of greenish hue, which is wonderfully effective. Not all the pictures, however, relate merely to scenery—some of the most charming are those possessing a flesh and blood interest. Each section contains a tabulated list of the various hotels, boarding houses, apartments and furnished houses, which are to be found at the seaside and country holiday centres described, with full details of charges, distance from station, available accommodation, &c. On the title page emphasis is laid on the fact that the tariffs quoted in this publication are not guaranteed, but are quoted merely as a guide. "What the Railways Provide" is the title given to a couple of pages summarising cheap travel and other holiday facilities now available to the traveller by train. The handbook, which costs 6d., is bound in a plain but effective cover of blue, black and gold. It contains a fine tourist's map of Scotland showing the L.N.E.R. system and its connections.

Southern "Hints for Holidays"—There are 930 pages of this popular Southern Railway handbook this year and innumerable illustrations—all, of course, designed to lure the reader to the various holiday resorts served by the "Sunshine Line." The illustrations are well selected and artistically arranged, and a number of maps add materially to the usefulness of the publication. The Southern holiday area is extensive and includes some of the loveliest scenery in England—as will readily be admitted after a glance through the picture pages aforesaid. The price of the handbook remains, as before, at sixpence, and is yet another reminder of how much the undistinguished but useful coin will purchase in these alleged hard times. Good paper, clear type and very readable descriptive matter are not the least of the book's many attractive features. Its coloured picture cover, too, is bound to catch the public eye and set young hearts a-longing. Naturally, in a work of this kind the fullest information is given respecting the accommodation offered by various hotels and apartment and boarding houses: this is clearly set out in tabular form and it is expressly stated that the advertisements bearing on the subject are only accepted for insertion subject to the accommodation conforming to a satisfactory standard.

Water Softening Plant.—We have received from Bell Brothers (Manchester 1927) Limited, Calder Ironworks, Denton, a copy of a new catalogue of water softeners. The equipment listed provides for both large-scale industrial and domestic requirements, and operates on the base exchange, pressure, and continuous treatment systems. An important application of Bell system of chemical filtration is to extract grease and oil from water to be used for steam-raising purposes. The catalogue includes a detailed description of special form of feed gear fitted to plants of this type to provide for the accurate admixture of the chemicals and reagents with the water to be treated. Apparatus for the neutralisation of water supplies containing injurious acids and for carbonating softened water in order to eliminate deposits is also listed.

THE SCRAP HEAP

Sir Richard Redmayne, in proposing the toast of "Our Guests" at the recent annual dinner of the Institution of Civil Engineers, suggested that there might be a speech marketing board for the control of post-prandial speeches.

* * *

A special train of twenty-four vans containing over five thousand cases of whisky left Glasgow High Street goods station on a recent Saturday afternoon, travelling via Berwick and King's Cross to Southampton, which was reached at mid-day on the Monday when the consignment was transferred to the *Majestic*, which was sailing for New York on the Wednesday.

* * *

An unusual dish served in restaurant cars of the Canadian National Railways is egg plant (aubergine) *en casserole*. One large or two small egg plants with three small onions, one clove of garlic, three tomatoes and one green pepper are sliced very thin and ranged alternatively in a buttered casserole. They are seasoned with salt and pepper, four tablespoonfuls of melted butter are poured over all, the cover is put on and the combination is cooked at slow heat. The dish is served hot or cold.

* * *

WOMAN'S EARTHQUAKE EXPERIENCES

In the course of a woman's description of her experiences in the Indian earthquake communicated to *The Statesman* she says:—

"Trains may run up here* after some weeks but further North probably *never*. You should see the state the line is in from here north. Bridges have either sunk and disappeared or been thrown up. The straight bunds† now look like snakes, and the railway line is twisted like a piece of forked lightning. Some of it is in the fields."

Describing her personal experiences she also says: "I rushed out and could not stand and so was obliged to sit, and even while sitting I was knocked over and banged my head on the floor, I was rolled over and over, backwards and forwards, up and down, until I was sick. You see we had three dangers to face. The earthquake. Then there was splitting of the land everywhere—most of these a quarter of a mile long and two feet wide or more. And, thirdly, we had the water phenomena!

"At the moment the earthquake was at its worst, holes shot through the ground and through these holes jets of water were shot out to a height of some feet. The holes were anything from an inch to feet in diameter.

"The water dropped to ground level within half an hour, but they kept up a flow of sand and water for two days. It is in this way that the countryside looks ruined, for all the fields are covered in sand—some two feet deep. The water came from depths below and was hot, and the sand is a very deep water bearing sand. These fountains came up with terrific force splitting concrete and bungalows. The noise of the earthquake, the springing and falling from the fountains sounded like a storm coming up. Water came so quickly. We said we'd be drowned, but *luckily* they died down, although the rivers are still surging. I would have given all I had for a camera."

* * *

HEARD ON THE RADIO

Telephone enquirer: "Hallo, is that the L.N.E.R.?"

The L.N.E.R. (a female voice): "Yes."

Telephone enquirer: "Are you the passenger department?"

The L.N.E.R.: "No, I'm the goods."

* * *

The L.M.S.R. figures in an unusual role in a development which it has recently carried out on the Shropshire Union Canal, owned by the railway. The waters of the canal, which is in great favour with anglers from Liverpool, Manchester, and many parts of Lancashire, and is the scene of many angling competitions, have been restocked by the L.M.S.R. with a total of 13,000 coarse fish, including dace, roach, perch and rudd. The new stock has been distributed over the Chester-Ellesmere Port, Beeston, Bunbury, Calveley, Barbridge, Wrenbury, and Middlewich Branch sections of the canal, and in transporting the stock from the ponds to their new destinations not a single fish was lost.

* * *

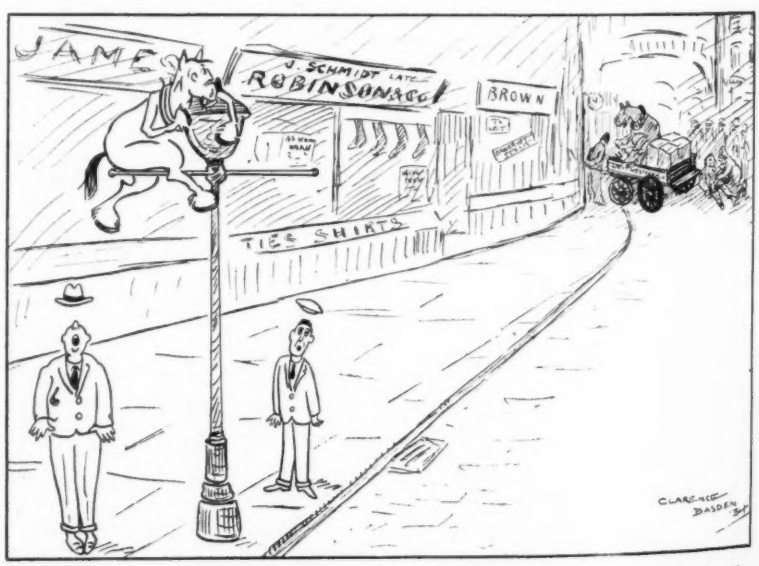
KEEPING HER OWN COUNSEL

A Scottish local train had made its last stop before branching off the Aberdeen line in another direction. At the junction a porter went along the platform asking: "Any here for Aberdeen?" When the train had restarted an old lady, obviously unaccustomed to railway travel, leant across to her neighbour and confided: "I was for Aberdeen mysel', but I was'na going to tell yon spearin' body."—*From "The Morning Post."*

* * *

RAILWAY LULLABY

Professor Saloman, a German inventor, has, I am told, just produced a novel sleep-inducing machine. It consists of a plain, round wooden box, on three little legs, in which is mechanism which reproduces the hollow, droning sound made by the wheels of a train and punctuated by the clicking as they pass over the rail joints. The mechanism is driven by clockwork and runs for 40 minutes, during which time the sufferer from insomnia has to imagine himself in a railway sleeping-car being lulled to sleep by the clicks from the rails. It seems a pity this mechanical deception has not been carried still further so as to include the rocking of the bed, an occasional whistle, the grinding of brakes, and the frequent repetition of "All tickets please!"—*From "The Star."*



At the Great Western Railway annual meeting reference was made to the acquisition of the "Percheron" breed of horse. This was wrongly reported as "perching horses," and our cartoonist shows what might happen if the Great Western Company commenced using the latter type of horse

* "here" is not specified, as there is no address given, but it is evidently in North Bihar and probably refers to the B. & N.W. Railway.

† Not one single bridge escaped damage or destruction on the Tirhut section embankments.—ED. *R.G.*

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

Six months' accident enquiries in India—French Premier on rail, road, and water transport—New and improved communications in the Far East—New Zealand rolling stock programme

INDIA

Railway Accidents

During the half-year April to September, 1933, the Railway Board ordered 11 inquiries into railway accidents. The reports of the Government Inspectors of Railways who conducted these inquiries are now available. Of the 11 accidents, two occurred at level crossings and in both cases motor omnibuses were run into by trains. The first of these took place near Bhadohi station (E.I.R) on June 6, 1933, when 5 up mail crashed into a motor bus. Fifteen passengers in the bus were killed on the spot and 16 were treated at the local hospital, where two subsequently died. The bus carried 36 passengers, though its seating capacity was only 20. The gates at the level crossing were not closed, and the mail train was travelling at 58 m.p.h. at the time of the accident. The Government Inspector came to the conclusion that there was no justification for the gates not being closed to road traffic immediately after the outer signal was lowered, and the gate-keeper was therefore responsible for the accident and both he and the bus driver were prosecuted. In view of the seriousness of the accident, Mr. Sleigh, Senior Government Inspector, made the following general recommendations for level crossings.

(*a*) The provision of semaphore stop signals interlocked with the gates, the cost of which should be met from the Road Fund.

(*b*) For ensuring caution on the part of motor drivers at level crossings, the penalty under Section 124 of the Railways Act IX should be increased and the offence made cognisable.

(*c*) Caution boards at level crossings should be standardised and the cost of providing these caution boards should be paid from the Road Fund. Motor drivers should be examined as to the meaning of the caution boards and of other road signs before a driving licence was granted.

The second level crossing accident was a collision between a train and a bus on July 5, 1933, on the Burma Railways within station limits at Kyaukme. There were three persons in the bus, one of whom died of injuries. The Government Inspector agreed with the finding of the joint committee of inquiry, that the driver of the bus was solely to blame for the accident. It was decided to request the P.W.D. to close the level crossing at which the accident occurred as it was unmanned and the railway line unfenced. Instead the railway proposed to provide gates at another level crossing near by, where there were already barriers.

The derailment of the E.I.R. down Punjab Mail between Dumra and Burhee stations on May 2, 1933, was found to have been caused by criminal tampering with the rails. The casualities in this accident were five dead and 13 injured. The damage to rolling stock and permanent way cost approximately Rs. 48,000. The Government Inspector recommended that the steel keys in the C.I. and D. & O. plate road should be turned upwards at least through 60 degrees so that the keys would not come out easily. The derailment of 85 up passenger train near Dharampore station on the Kalka Simla Railway on April 17, 1933, was due to excessive speed. The driver to blame was new to the hill section. It was recommended that drivers should have more experience over this very tortuous, steeply graded and generally exacting section of line before being put to work on passenger trains. There were two accidents of trollies being run into by trains, resulting in three deaths, and in both cases negligence on the part of the persons using the trollies was apparent.

Accidents in Station Yards and due to a Flood Breach

A side collision between a portion of the down Asansol pilot and 12 down express near Raniganj (E.I.R.) was found to be due to a defective setting of points. Ten passengers, a shunter and a fireman were injured. The damage to permanent way and rolling stock was estimated at Rs. 42,000. The accident to 8 down express at Gomoh came about by the engine backing on to its train violently, causing slight injuries to several passengers. The Government Inspector came to the conclusion that the driver, who had a good record of service, had suddenly fainted and this view was corroborated by the evidence of the engine crew. On the Barsi Light Railway a special train ran into a breach caused by floods at mile 21 between Sangola and Wasud. The engine capsized and 11 of the vehicles following were derailed. The fireman died of injuries, while the driver and the second fireman received minor injuries. None of the passengers or other train staff was injured. The accident occurred at 20-33 hours and was attributed to the abnormal flood.

Train Derailed by Cyclone

In THE RAILWAY GAZETTE dated January 26 last a paragraph under the above heading appeared in the Overseas columns. It has now been established that the casualties as then reported were greatly exaggerated and that only one passenger was slightly bruised.

FRANCE

Continued Decline in Traffics

French railways continue to report decreasing traffic and there are no signs of any improvement such as the British railways have experienced in recent weeks. Traffic receipts for the seventh week of the year, February 12 to 18, are still worse than in the preceding weeks and they compare badly with the corresponding period last year. The comparison is made even more unsatisfactory when account is taken of the fact that since November 1, the railways have benefited by a reduction in the passenger tax from 32·5 per cent. to 12 per cent. Despite the cut in the tax the total gross receipts of the railways have fallen by 14,788,000 francs, or 7·14 per cent. when compared with the same week in 1933. In the sixth week the decline was 6,263,000 francs, or 3·08 per cent.

The gross receipts of the various systems for the seventh week of 1934 are as follow:—

	Receipts fr.	Decreases compared with 1933: Total fr.	Decreases compared with 1933: Percentage per km.
Alsace and Lorraine	14,100,000	671,000	5·24
Est ..	26,231,000	2,966,000	10·67
State ..	30,072,000	978,000	7·82
Nord ..	30,700,000	3,807,000	11·03
Orleans and Midi	38,810,000	4,146,000	5·95
P.L.M. ..	54,690,000	2,220,000	3·88
Totals ..	194,873,000	14,788,000	7·14

It will be noticed that by far the heaviest traffic declines in the kilometric percentages are on the Nord and Est. The number of wagons loaded in the week February 12-18 was 297,658, compared with 329,704 for the same week in 1933, the total showing a decrease of 9·72 per cent. The total loaded from January 1 to February 18 was 2,092,902, against 2,177,565 last year, a decrease of 3·88 per cent.

National Importance of Railways

This constant decline of railway earnings in France is an indication of the severity of the trade depression in the country. Evidently there is no prospect of railways being placed on a

paying basis in the near future. This point was emphasised by Mr. Gaston Doumergue, the Premier, in his recent address to the National Economic Council, when he presided over the debate on the transport problem. M. Doumergue said that motor competition on the roads had taken the cream off the railway traffic and left the railways with a deficit amounting to fifteen milliard francs in four years, equivalent to £120,000,000 at par. This sum, the Premier added, weighed heavily on the country's finances, as the State guaranteed the interest on the loans raised to cover the deficit. The loans had a direct influence on interest rates and made it more difficult for the Government and for private companies to borrow money. The railway question was therefore more than a transport problem, it affected the entire national economy.

The railways, concluded the Premier, form a public service essential to the national economy and defence and they must be defended in the terrain where they excel. Paying traffic must be brought back to them and the automobile left to its own immense field which it must not quit merely for the satisfaction of private interests, upsetting the economic balance of the railway tariffs and even the economy of the country. The rail, road and waterway, he said, each has its place assigned by special fitness and they must collaborate to assure the best service at the least expense. The Premier's address is taken to be a forecast of coming legislation based probably on a report by M. Josse, adopted by the National Economic Council.

Loans and Expenditure

Railway loans occupy a prominent place in the budget provisions for 1934. The railway bond issues for the year are limited provisionally to 5,702,500,000 francs, equivalent to £45,620,000 at par. These issues comprise 192 million francs for new lines, 750 millions for capital expenditure, about 800 millions for rolling stock and 4,000 millions to cover the deficit of 1933. The leading railway systems are authorised in 1934 to place orders for material amounting to 450 millions, of which 150 millions will be provided out of the proceeds of the loans and also to carry out new works to the amount of 753 millions.

THE FAR EAST

Japan—Chosen (Korea)—Manchukuo by Rail and Air

With the opening of Tanna tunnel an accelerated train service between Tokyo and Shimonoseki has been established, and, in order further to improve the through journey, the Japanese Bureau of Railways has under consideration plans for air and rail bookings between Japan and Manchukuo via Chosen. Such a course would considerably shorten the time taken by the present sea and rail journey via Shimonoseki and Fusan for passengers for Chosen and the north by rail via Antung and via Shimonoseki and Dairen for passengers for the South Manchuria Line.

A Profitable Railway

According to the *Chinese Economic Bulletin*, the Kiaochow-Tsinan Railway had a most successful year in 1933. The total net profit upon working amounted to over $5,000,000, so that even after deducting the $1,200,000 due as an instalment repayment on the Japanese loan, a clear surplus of over $4,000,000 is in hand.

New Railways in Kiangsi and Chekiang

Construction work on the Yushan-Pingsiang line across the province of Kiangsi is to be begun at the Yushan end and will be undertaken jointly by the Chekiang and Kiangsi local governments. Meanwhile the opening ceremony of the entire length of the new Hangchow-Kiangshan Railway took place on December 20 at Kinhua station in western Chekiang. Through public traffic began to be operated on December 28.

Other Projects

The Ministry of Railways has sanctioned the construction of a branch of the Shanghai-Woosung Railway along San Min Road, Chapei, to the civic centre in Kiangwan,* at the request of the Greater Shanghai Municipality. This branch will greatly assist the development of the civic centre and will be located by the Shanghai-Hangchow-Ningpo and Nanking-Shanghai administrations. The Tientsin-Pukow Railway is surveying a new branch from Pengpu to Chengyangkwan, in northern Anhwei, a distance of over 300 li (about 120 miles), states the *Chinese Economic Bulletin*.

South Manchuria Company's Annual Meeting

At the annual meeting of the South Manchuria Railway Company, held at Tokyo on December 20, 1933, Count Hayashi, the President of the Company, stated that for the current fiscal year net profit of over Yen 40,000,000 was estimated. The estimated income for the fiscal year was approximately Yen 233,000,000 and expenditure at Yen 193,000,000. An increase of Yen 13,000,000 accrued from railway revenue alone and from collieries an increase of Yen 12,000,000 was anticipated. Count Hayashi gave a full review of the position of the railway and assured the shareholders that their rights and interests were quite secure and would be carefully safeguarded.

The extensive coal mining interests of the South Manchuria Railway have the double advantage to the railway of yielding both a valuable mineral product and a heavy traffic tonnage and the still further advantage of providing coal for railway use. During 1933 the Fushun mines near Mukden yielded about seven million tons of coal, of which approximately one-third was shipped to Japan. About two and a-half million tons were distributed for consumption in Manchuria, and the railway itself used over a million tons.

Wireless on Trains

An innovation in the form of wireless telephones is being introduced on railways in Japan. Trains on the Hiroshima-Shimonoseki sector are being equipped, and the travelling public on this part of the railway will be in telephonic communication with the areas of Osaka and Tokyo.

Pekin—Mukden Railway

The expected opening of the Peking-Mukden Railway for the conveyance of through traffic from January 1, did not materialise and the practice of changing trains at Shanhaikuan continues. The obstacle to through operating is purely political as it involves the recognition of Manchukuo by China and any step that might be so interpreted is distasteful to the Chinese authorities. A tentative principle upon which restoration of through operating might be considered by China is for trains from the Manchurian section of the railway to operate under a transportation organisation arranged by the South Manchuria Railway which would overcome the objection to trains running inside the Great Wall in the name of the Mukden-Shanhaikuan Railway Administration created by the Manchukuo authorities and not recognised by China.

NEW ZEALAND

New Rolling Stock

A comprehensive programme of work involving the building of new coaches and trucks at the Otahuhu (Auckland) railway workshops has just been authorised and a start will be made immediately. The total rolling stock in the Auckland Province will be increased by 121 vehicles. Included in its programme is an order for 22 main-line coaches for use on the New Plymouth-Stratford line, incorporating all the latest improvements in design. Five suburban coaches for use in the Auckland district are also to be built at Otahuhu. The new wagon stock comprises 18 W type wagons insulated for the carriage of farm produce, 16 V-type wagons for the transport of mutton, 10 Z-type wagons to take fruit, and 50 sheep trucks. This construction programme is to be carried out in addition to the ordinary maintenance and repair schedule. Additions on a somewhat similar scale are being made to rolling-stock throughout the Dominion, following the definite revival in business which recent months have witnessed.

* This line was mentioned in our editorial note on page 337 of THE RAILWAY GAZETTE, of March 2.—ED. *R.G.*

RAILWAYS AND ROAD TRANSPORT SECTION

This section appears at four-weekly intervals

Local Distribution in North Wales

THE success of the scheme of country lorry services, organised by the L.M.S.R., continues to call for further extensions. When we last referred to the matter, on September 8, 1933, there were services from 140 centres serving 600 stations in England and Wales. The latest development adds nine depots in a system of local distribution which will enable traders in a large area of North Wales to enjoy up-to-date transport facilities. This latest chain of depots has been arranged at what might be termed key points, stretching from Chester into Anglesey and Caernarvonshire. They are at Holywell Junction, Llandudno Junction, Llangefni, Rhyl, Abergele, Bangor, Caernarvon, Denbigh, and Ruthin, and at each, warehouse accommodation on modern lines has been provided. The motor vehicles attached to each depot penetrate into the surrounding country up to a radius of 10 miles, linking up many small villages and isolated farms within the sphere of railway operations, and enabling buyers to obtain their supplies as they need them.

Goods can be booked to the nearest railhead station for immediate delivery therefrom by motor, and we learn that the scheme has been the means of attracting a considerable volume of business to the railway, especially in the case of such commodities as cattle food, grain, flour, cement, &c. Manufacturers and distributors are taking advantage of the arrangement under which they may rent space in the company's warehouses at a nominal charge so that stocks can be held locally. Customers also appreciate the facility of being able to obtain delivery of goods required by the simple expedient of telephoning the railway company's agent, who undertakes all the arrangements, such as handling the goods, stock keeping, and recording deliveries. The motor vehicles utilised in connection with the service are also available for collecting produce or other merchandise for despatch by rail. We are informed that the increase in business has been so marked that in many cases it has been necessary further to augment the warehouse accommodation. The latest expansion, at Caernarvon and Llandudno Junction, is seen in the new warehouses, each with approximately 2,250 sq. ft. of storage accommodation, added during the last few months.

Road and Rail in Italy

IN the course of a spirited reply to a debate in the Italian Senate on the budget of his department, the Minister of Communications, Signor Ciano, said that he did not think the time had come to put a stop to road competition in order to revive the railways. He appreciated gladly every form of progress even though this did not prevent him from being seriously preoccupied about it. For years he had been studying the influence of motor competition on the railways. Road transport development in Italy was not so intense as in other countries, as there were only about 90,000 lorries in use against 360,000 in England and 437,000 in France. Investigations made in 1931 showed that road transport had affected State railway traffic to the extent of about 3 per cent. and this increased to 13 per cent. in August, 1933, with a daily average of 150,000 tons, transported by road. While

The enlarged warehouse accommodation now available at Caernarvon in connection with L.M.S.R. country lorry services

these figures were only approximate, it being necessary to differentiate between long and short-distance traffic, as the latter would not be handled by the railway in any case, the disturbing fact remained that the percentage had more than quadrupled in two years. The actual effects would be more serious because the greater the mileage, the smaller, proportionately, the tariff rate and there was also the fact that motor transport was taking the goods which were subjected to the higher railway tariffs. The 1932-33 statistics showed that while the decrease of low tariff goods was 24·2 per cent., it reached 58 per cent. for high tariff goods, which made the economic losses more serious than those of tonnage.

The Minister expressed the opinion that the railways' monopoly had ended for ever. The railways must adjust themselves, economically and technically, to the new order. The administration would have the courage to revise the whole tariff system, but at the same time it should be relieved of financial burdens like that of the pension fund, reckoned on an illogical basis which counted military service as railway service. With regard to technical adjustment, the Minister said that beyond the already authorised 4,000 km. of electrification, schemes were in hand covering a total of 9,000 km. of main lines, leaving 7,731 km. to railcars for passengers and steam traction for goods. Petrol-engined railcars had done well, but the use of oil engines was being postponed until they were nearer perfection. Railcars of the Littorina type had given good results. One had covered the distance between Florence and Rome in 2 hr. 38 min. at a speed of just under 90 miles an hour. Although maintenance costs were not available the Minister said that, even reckoning on a very short life, the Littorina cars were likely to show a profit of 1·30 to 1·40 lire (about fivepence) per kilometre. The Minister said that excellent results had been obtained with a new type of refrigerator container for fruit and vegetables, three of which could be loaded on one truck.

Road Transport in India

CONTRARY to the general run of blue books, one which has been recently published by the Government of India is full of interest. It is entitled "Report on the present state of road and railway competition and the possibilities of their future co-ordination and development, and cognate matters, in Governors' provinces." It has been drawn up by Mr. K. G. Mitchell, Road Engineer with the Government of India, and Mr. L. H. Kirkness, Officer on special duty with the Railway Board, who conducted a tour of investigation and studied reports from each of the provinces. A brief study of the 600 pages is sufficient to emphasise the need for transport co-ordination in some form in India, and it is stated that "it appears that, apart from its probable effect on railways, public opinion would support some tightening of the control of motor transport in order to give the public a more convenient, safer and more reliable service. On that point it is worth quoting an experience of the investigators. "We came across a bus at the roadside with four passengers seated in it; the first had been there for two hours and there was a prospect of several hours' further delay before the bus would start, either when a sufficient number of passengers offered, or when other waiting drivers insisted upon its departure, or when the few passengers agreed to pay extra." In a chapter on motor transport in the United Provinces we get another pen picture. "We found a certain weight of opinion in favour of monopolies and in three districts in the west of the Provinces one bus proprietor has been granted a virtual monopoly over 30 unmetalled routes on condition that he maintains the roads in a reasonable state of repair." He appears to offer a reasonable service, we are told, and publishes a time-table.

It is clear that a great factor in the problem is what is termed the lack of balance in the development of the roads. Railways were laid down parallel to the trunk roads and new main roads have been made in line with the railways while local and feeder roads have been neglected. The result is that large numbers of important villages are not connected with any public roads, except by a cart track which may or may not be maintained by co-operative action among the villagers. It is pointed out that so long as these villages are separated by a mile or two from the public road, it will not be easy to get rid of the bullock cart. The report mainly deals with roads and passenger services. So far the carriage of goods and merchandise is only in its infancy and is mainly seen in the larger cities. In Amritsar, for example, there are agencies which do not own motor vehicles, but collect the goods and then charter the vehicles to take them to outlying towns. It is pointed out, however, that with the general improvement of roads, and the revival of trade, this form of competition will increase and needs careful watching by the railways. All through, the volume is most illuminating, and the painstaking work of its authors should certainly be of very great assistance to those who are trying to formulate a scheme by which India may secure a transport system which shall serve the public well.

The Danish Policy

IN pursuance of the decision to buy up 10 per cent. of the bus services in the country, as one way of overcoming competition, the Danish State Railways had up to January 1, acquired 47 routes, with 142 buses, covering a total of 1,190 route miles. The daily bus mileage is about 8,600. The procedure is to secure the licence from the local authorities and purchase the rolling stock from the former owner, who then is employed in some such capacity as a driver or a district bus superintendent. The private railways are also working on these lines. The South Fionia Railways Company, which runs the short distance between the small towns of Faaborg and Svendborg, has bought the bus route connecting the same two cities and has co-ordinated the services, so that the train service has been reduced from 8 trains a day in each direction to 4, while there are now 5 bus services in each direction, so that there is now a more frequent service than that provided by the railway before.

Railway Exhibit in German Motor Show

AT the International Motor Car Exhibition, which closes in Berlin on Sunday, the German State Railway has staged a special display called "The Motorised Reichsbahn." It is intended to emphasise the close co-operation between road and rail, and the half a dozen lorries of various types which are exhibited include a Doble steam wagon, one operated on wood-gas, three carrying new types of containers for loose goods, and one fitted up with small sized containers, while a large scale working model demonstrates the collaboration between railway and lorry in door-to-door traffic with containers. Another working exhibit is that of a lorry, with a load of cement, capable of negotiating rough country in the Government road-rail services, a moving road surface demonstrating how the independently sprung oscillating axles adapt themselves to uneven soil conditions. Various internal-combustion engines, ranging in capacity from 30 to 420 h.p., developed for use in lorries, small locomotives and railcars, are also shown, and emphasise the increasing employment of this type of prime mover for railway work.

A Mechanised City Goods Station

How the mechanical horse has enabled many of the problems of the L.N.E.R. Farringdon Street goods station to be overcome. Horses entirely displaced by motor tractors and carrying units

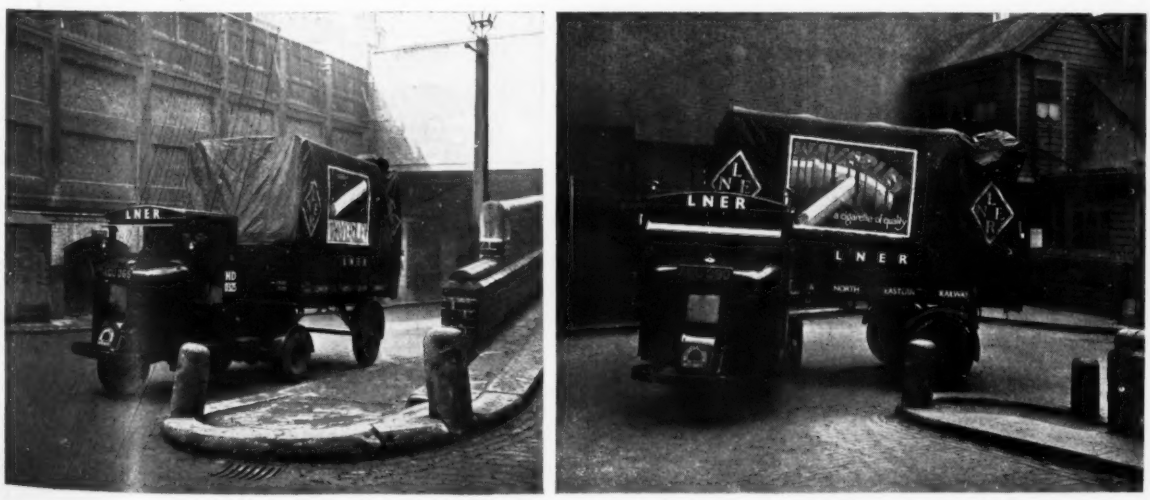
IN the review of the company's business during 1933 which accompanied the recently-issued report of the directors of the London & North Eastern Railway (and which was reproduced on pages 417-420 of last week's issue of THE RAILWAY GAZETTE) mention was made of the complete mechanisation schemes which have been carried out at two goods stations. A greater contrast could hardly be obtained than between the two stations in question. Ashburys, Manchester, is a new station laid out on modern lines with practically no restricting influences, although existing buildings were utilised, but Farringdon Street, London, is an old station—it was opened in 1874—where space is extremely limited and there is no possibility of extending. A description of Ashburys—officially designated Ardwick East—was published in THE RAILWAY GAZETTE of July 1, 1932, and we were recently afforded an opportunity of seeing the Farringdon Street station at work under the new conditions. The cartage problems of each have been solved by the use of van tractors; in Manchester the fleet consists of Karrier Cobs, while in London the unit used is the Scammell mechanical horse. Both of these units have been described in these pages in the past so that it is not necessary to repeat them in detail here.

Not only is space very severely restricted at Farringdon Street station but it must also be borne in mind that the railway is underground and, while some of the trucks are raised by hydraulic hoist to the street level floor of the depot for unloading and loading, others are dealt with where they arrive. When the station was laid out provision was made for reaching street level by means of an inclined road, fairly steep, with a real hairpin turn halfway up, as shown in our illustrations. Sixty years ago space so near the centre of London was hard to get and it was decided to make the best use—in the light of those days—of what was available. The situation of the station,

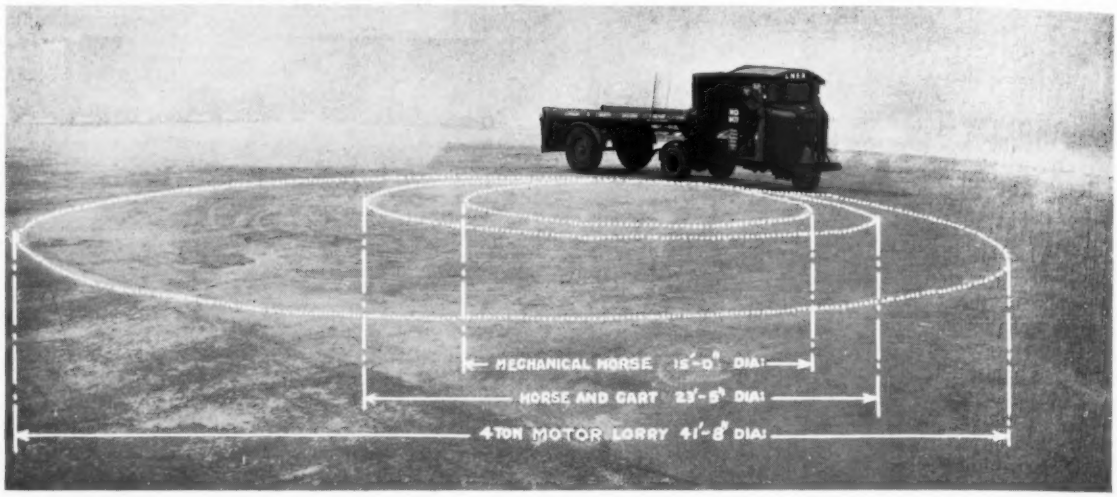
A tall load being handled in the narrow road by a Scammell mechanical horse

adjacent to the Smithfield meat market, means a heavy meat traffic, while the proximity of the City warehouse area accounts for considerable tonnage of textile and general goods.

It is a full day's work that is done at Farringdon Street. The cartage commences at 1.0 a.m. with the delivery of Scotch meat to the Smithfield market from the express freight services and about 4.30 a.m. vegetables for Covent Garden commence to arrive, followed by the ordinary merchandise, including tobacco, cotton goods, woollens, leather, paper, poultry, bacon, and groceries. By mid-day the tractors commence bringing in traffic for



Two views showing the acute turn in the road from rail level to street level at the Farringdon Street goods depot, and how it is negotiated by the Scammell mechanical horse with loaded carrier



A graphical representation of the respective minimum turning circles of the Scammell mechanical horse, a horse and cart, and a 4-ton lorry of the usual type

dispatch by rail to the North and Midlands by afternoon and evening trains, and this carries on to a late hour. With such intense traffic it can be understood that cartage has been for long an increasing problem and Farringdon Street has been regarded as one of the most difficult depots on the L.N.E.R. from that point of view.

With the general adoption of motor vehicles in place of horse teams it has been possible to effect considerable improvement and economy at other London depots, but owing to the restricted space in the roadways and loading bays at Farringdon Street ordinary motor vehicles were severely handicapped, because of the amount of manœuvring which had to be done to get into position. The success of the three-wheeled van tractor, or mechanical horse, with a carrying unit, a scheme which was pioneered by the L.N.E.R., put a different complexion on the matter and now the entire cartage operations of the company at Farringdon Street is done by this means. During 1933, the equipment of 60 mechanical horses with 92 carrying units handled 85,844 tons, work which had previously required 87 horse teams and 134 vehicles.

On arriving at the underground station the rail trucks are placed along the loading stages by capstans, but this work has been reduced, through the handiness of the mechanical horse combinations enabling them to reach the trucks. It should also be pointed out that there are a great many pillars supporting the street level floor of the depot, which have to be avoided. At the time of our visit we were able to see comparative tests made by a horsed van, a Scammell mechanical horse and carrying unit, and a 4-ton van, and this emphasised the superiority of the mechanical horse, in negotiating conditions of this sort, the turning-round of the 4-ton van being quite a lengthy business owing to the amount of reversing necessary. As a result of the good work of the mechanical horse units it has been possible to remove a number of the capstans and dummies.

In these days of heavy loads it is illuminating to see

At the loading bay in Farringdon Street goods station, showing an uncoupled carrying unit being loaded while a loaded one is being drawn away by the tractor

the ease with which the van tractor, with full load, negotiates the road from the low level to the street, taking the hairpin bend in its stride. The horse team had to have the assistance of a trace horse and even with restricted loads it was a severe strain to get up, while the usual type of motor lorry would have to stop and reverse in order to get round the turn, causing delay and congestion.

At the street level depot which is immediately above the low level station the loading stage is oblong, with a narrow roadway, only 14 ft. wide, alongside it, used not only for road vehicles passing to the extreme end but also for unloading and loading from the rail vehicles. We were able to see some competitive tests carried out here. A horse and a Scammell tractor were started together from one end of the stage, went along the road to the other end, coupled up to a vehicle and returned to the starting place, the tractor winning in 2 minutes, while the horse took 3¾ minutes. Another test showed how the automatic coupling of the Scammell mechanical horse to its carrying unit meant a great saving of time, and it was demonstrated that this coupling-up can be carried out without any trouble, even when the tractor has to be backed on to the trailer at an angle. Uncoupling is equally simple, the trailer being supported by automatically lowered wheels.

One important point to be noted is that experience has shown that those drivers who have been handling horse teams require but the briefest training before being placed in charge of a mechanical horse, and this has the great advantage that these drivers have a good road sense and are fully acquainted with the routine of delivery and collection work.

Altogether, the L.N.E.R. now has 485 mechanical horses in use, most of them fitted with water-cooled engines of approximately 10 h.p. and capable of dealing with loads of between 3 and 4 tons, but there are a few with a more powerful engine which can take charge of loads up to 6 tons.

The demonstration to which we have referred was carried out under the supervision of Mr. W. McA. Gracie, Assistant Goods Manager, who subsequently showed some lantern slides illustrating the work of the L.N.E.R. in transporting heavy and outsize loads, views of which have appeared in these pages from time to time.

Trans-desert Transport

Details of some vehicles recently built by Albion Motors Limited, for service across the Syrian desert

SPECIAL interest attaches to two single deck buses which have just been dispatched to Iraq, for they are to be used on the services linking-up Baghdad with Damascus, Beyrout, Haifa, and Jerusalem. The design has been founded upon the experience gained with an Albion bus which has been working in the area since June of last year. These new vehicles have also been built by Albion Motors, and they have been fitted with engines developing 110 h.p., while tanks carrying 150 gallons of petrol have had to be provided so that the whole run of 570 to 666 miles, according to the route taken, can be made without refuelling. On the long desert section there is no properly-made road and no petrol store, although there is the well-equipped rest house at Rutbah Wells, one of the Imperial Airways landing grounds. In the course of the run nullas and sandy patches have to be traversed, and in dry weather, apart from the difficulty arising from the loose sand, frequent dust storms are met with, while in wet weather the track becomes so soft that it is well-nigh impassable. These conditions explain the use of such high powered motors.

The original Albion bus to which reference has been made carried eight passengers. The new ones are of greater capacity and they have different internal arrangements. One is designed to carry 12 first class passengers, with two second class ones seated beside the driver, while the other has accommodation for 6 first class passengers, with 2 second class beside the driver and 10 second class

One of the new Albion buses for service between Baghdad and Damascus

The seats in the first class compartment of the Albion desert bus are adjustable from sitting to reclining positions

seats in the other compartment. The first class seats are of the steel tube individual type, with adjustable backs and footrests and detachable tables. Thus the passengers can sleep in fully reclining positions or can sit up while meals are being served.

Crockery and food are stored at the rear of the coachwork and three water tanks are built into the roof, where they are surrounded by ice-boxes, with pipes running from them to taps near to the seats in various parts of the bus. Bearing in mind the rough ground over which the vehicles will have to work, the bodywork is specially strengthened by steel bands passing up the sides and over the roof to bind the whole structure together. Another detail is that in view of the extremes of dryness and humidity, the framework is secured by bolts and nuts in preference to screws. There are electric fans for cooling the interior of the vehicle in hot weather and hot water pipes for warming purposes when necessary. Every seat has an individual light, and in addition to the powerful headlights, a searchlight is fitted. A large hopper on the roof will accommodate up to 30 cwt. of luggage. One of the vehicles is being delivered to Dwyer & Co. (Iraq) Ltd., of Baghdad, and the other to Mr. Hain Nathaniel, who is working in co-operation with that concern.

A Small Portable Compressor

ALTHOUGH it has been primarily designed as a portable tyre inflator, capable of dealing with all kinds of pneumatic tyres, including giant pneumatics, the Pneu-Flator, just introduced by B.E.N. Patents Limited, can do useful work in operating a high-pressure grease gun, blow gun, spring sprayer or a small re-touching spray gun, so that it should prove a valuable addition to the equipment of maintenance and repair shops. It has been designed to overcome the disadvantage of overheating, usually associated with small, high-speed inflators and to deliver cool air, free from vaporised oil or moisture, at pressures up to 150 lb. per sq. in. The compressor displaces 2½ cubic ft. at a moderate speed, and the air under pressure has to pass through a triple coiled copper after-cooler, and then into an expansion chamber, where it is further cooled and filtered before entering the tyre.

The set can be supplied with an a.c. or d.c. electric motor, while the compressor is of the vertical, single-acting, ball bearing type, 2 in. bore by 2 in. stroke, with stainless steel suction and delivery valves, a drop-forged steel connecting rod and counter-balanced crankshaft. The crankcase is totally enclosed, lubrication being by splash from the sump, and a dipstick is provided to gauge the oil level. It is driven by an endless vee silent belt, enabling a comparatively low compressor speed to be obtained. The cylinder is deeply finned to assist cooling, while in the pressure chamber the air passes through the coiled cooler and filter before entering the hose.

Compressor, motor and pressure chamber are compactly arranged on a light steel base, carried on 8 in. diam. rubber tyred wheels so that it may be wheeled easily to the spot where it is required. Hose and cable are carried in clips on the sides of the handle.

The B.E.N. Pneu-Flator set being used for the inflation of a giant pneumatic tyre. It can also be employed for spraying work of various kinds

"ROAD AND RAIL TRAFFIC ACT, 1933."—We learn that the demand for the book on this subject by Messrs. Arthur G. Dennis and T. D. Corpe has necessitated a second edition. The opportunity has been taken to include the important regulations referring to applications for licences, objections, and appeals, and the forms to be used, and also the additional rules of the Railway Rates Tribunal and the Railway (Notice of Accidents) Order. A useful large scale map showing the new traffic areas in England and Scotland has also been included. The price of the new edition is 11s. post free, and it is published by the Solicitors' Law Stationery Society Limited.

AUTOMATIC STANDBY EQUIPMENT

As adapted to ensure uninterrupted supply of current for colour light railway signalling systems

WITH the rapid progress that is being made in this country with the electrification of railway signalling systems, railway engineers are faced with the problem of amply safeguarding against the failure of electricity supply. Where duplicate supplies of current are available the problem is easily solved, but the purpose of this article is to deal with those cases where no alternative supply is obtainable at reasonable cost. The firm of Austinlite Limited, the well-known automatic switchgear and plant manufacturer, has been dealing with this problem for some five years and has recently carried out contracts for standby equipment for the Great Western and London & North Eastern Railways with entire success.

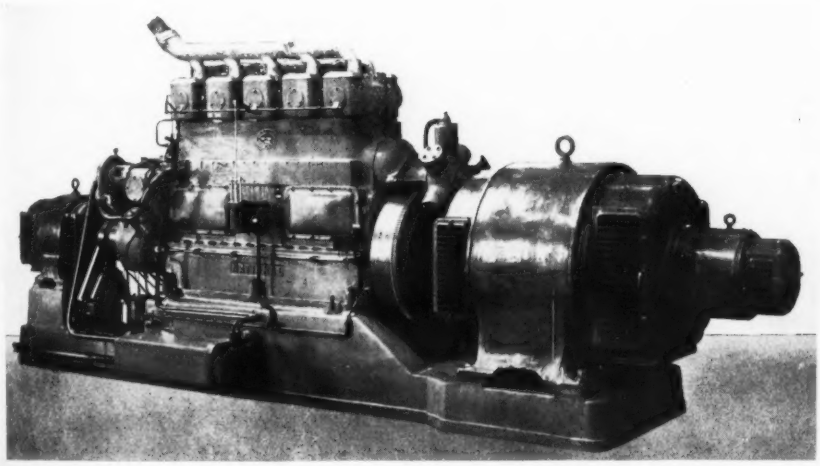


Fig. 1—Cold starting diesel engine for standby plant where momentary failure of supply is permissible

Generally speaking, standby equipments come under two distinct classes, (*a*) where a failure of supply can be tolerated for a few seconds, and (*b*) where a break in the supply is not permissible even for an instant.

Plant Suitable when Momentary Failure is Permissible

The principal components and controls of the plant required under class (*a*) are shown in Figs. 1 and 2, but in addition, the following units are necessary: Remote control switches installed in the signal cabin; a change-over switch; a low voltage lead-acid battery; and the usual water cooling, fuel and exhaust arrangements.

In normal circumstances, when the mains are energised, the plant is stationary, the engine being in a decompressed condition with the fuel pump governor closed, being held in that condition by the spring bias of the decompressor and fuel solenoids. In the event of a mains failure, however, the signalman on duty immediately throws the change-over switch in his cabin on to the auxiliary supply and operates the remote control switch. This automatically connects the battery to the dynamotor through the main starting contactor on the d.c. panel. The dynamotor at once begins to crank the diesel engine, and at a predetermined crankshaft speed (approximately 130 r.p.m.) the low speed contact of the centrifugal switch completes the circuit to the decompressor and fuel solenoids through a pilot relay, giving the engine full compression and permitting the injection of fuel to take place simultaneously.

Under this condition the engine rapidly accelerates, and at approximately 75 per cent. of its normal speed, the high speed contacts of the centrifugal switch open, which, in turn, open circuits the reverse current relay time lag and pilot relay; the pilot relay brings an economy resistance into the coil circuit of the decompressor and fuel solenoids. The plant should now be on full load, and on the d.c. side the battery should be receiving its maximum permissible charge rate. When the battery is fully charged, however, the master voltage relay closes a circuit, operating a pilot relay to insert resistance in the shunt circuit of the dynamotor, thus reducing the charge rate to the battery to a trickle rate for the remainder of the run. On resumption of the mains supply, all that is required of the signalman is the operation of the changeover switch and remote

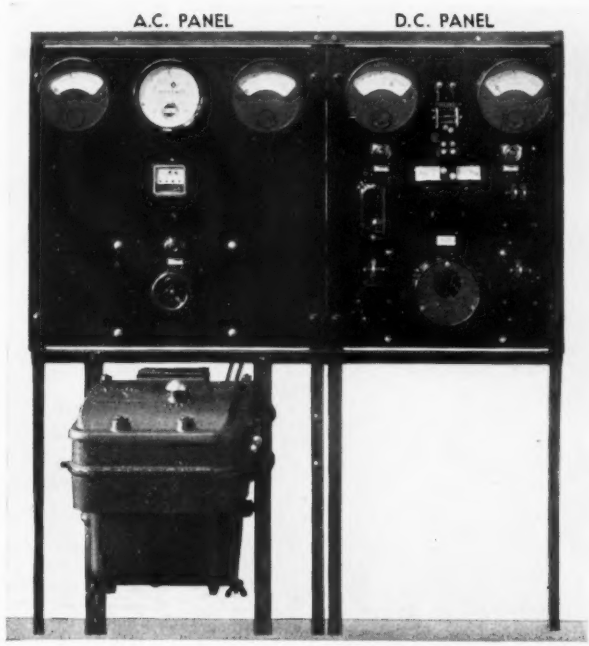


Fig. 2—Control panels for use with diesel-engined plant as shown in Fig. 1

control stop switch. Special protective features are fitted on the diesel engine for the prevention of damage due to lack of lubricating oil, excessive temperature of the cooling water and damage due to frost. The former device consists of a pressure relay in the oil circulating system, which stops the plant should the oil pressure fall below the minimum of safety. The latter devices consist of temperature controls, in the one case arranged to stop the plant when the cooling water reaches a predetermined maximum temperature, and in the other case to give the alarm when the ambient air temperature falls below 35° F. From the above description the following deduction become apparent:—

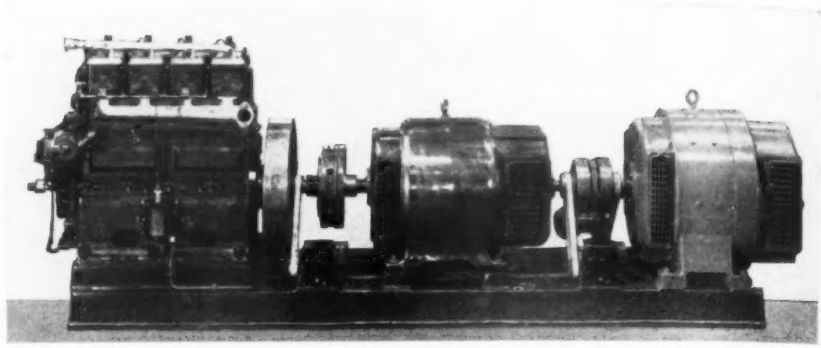


Fig. 3—Diesel-engined plant for use where continuity of supply is essential

(1) Due to the fact that the engine is always in a decompressed condition for starting purposes, the stress thrown upon the battery and starting gear is reduced to a minimum, and further, as the injection of fuel is impossible until the engine is in a position to fire with certainty, the possibility of failure is very remote.

(2) This system of starting promotes a maximum "get-away."

(3) By the inclusion of the master voltage relay, a fully charged battery is assured on the shortest runs, while the battery cannot be overcharged if the plant runs for a week continuously.

Plant for Assuring Continuity of Supply

The type of plant supplied to meet the conditions required under class (*b*) is totally different in design and operation from that described above. A plant of this type, with the associated control panels, is shown in Figs. 3 and 4. This installation deals with a load of 25 kVA at 0·8 power factor, 400 volts, 50 cycles, 3 phase. The components that comprise the installation, but do not appear in the illustrations, are:—An oil-immersed circuit breaker (a.c. main supply circuit); a low voltage 25-cell high capacity battery; and the usual water cooling, fuel and exhaust arrangements.

Scheme of Operation

In normal circumstances, when the mains supply lines are energised, the diesel engine is stationary, being in a decompressed state with the fuel governor in the "cut-off" position; the engine is retained in this state by virtue of the spring bias action of the decompressor and fuel solenoid mechanism. Meanwhile, the alternator is driven as a synchronous motor from the mains supply, there being no drive between the engine and the alternator because the magnetic clutch is de-energised. The d.c. machine is in turn driven by the alternator and is connected to the battery, which receives a constant trickle charge. Under the above-mentioned conditions, the oil-immersed circuit breaker is closed, the load being taken from the supply direct, with the alternator in parallel.

In the event of a mains failure a number of operations occur almost simultaneously.

(1) The alternator, robbed of its feed from the mains, no longer operates as a synchronous motor, but attempts to "back-feed" into the mains and also to carry the

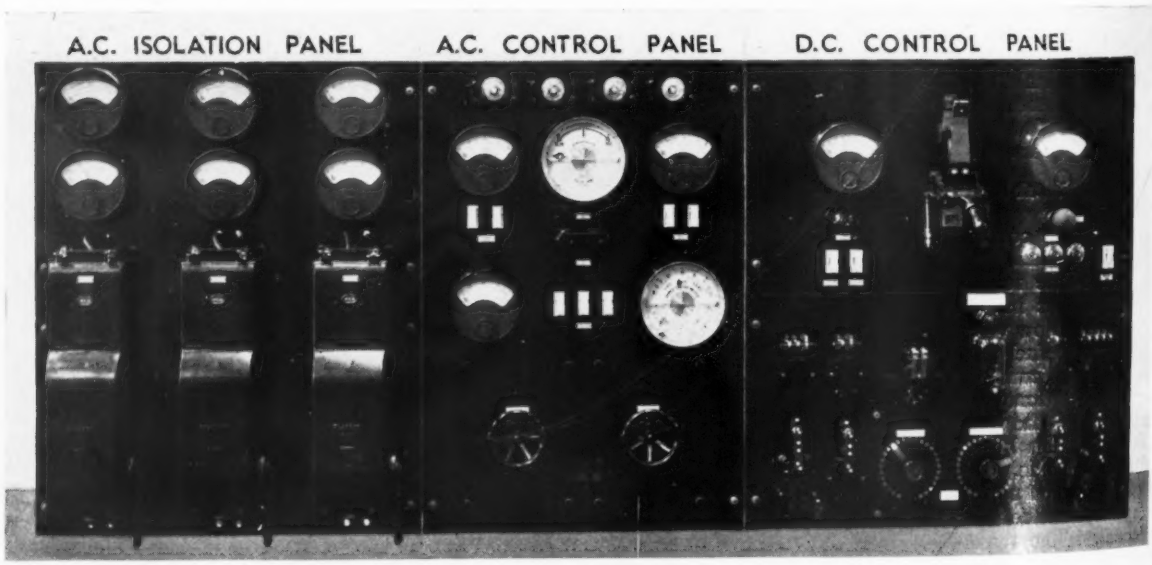


Fig. 4—Control panels associated with the plant shown in Fig. 3, this installation dealing with a load of 25 kVA

load, which results in the circuit breaker tripping out. An alarm is sounded in the signal cabin and power house.

(2) The d.c. machine ceases to charge the battery and starts to drive the alternator, taking current for this purpose from the battery.

(3) The interlocks on the circuit breaker automatically modify the fields of the alternator and the d.c. machine through relays, and also bring the engine up to speed, when the decompressor and fuel solenoid is energised through the centrifugal switch, giving the engine control of the equipment.

As soon as the engine takes over duty, the very heavy reverse current conditions between the battery and the d.c. machine, and which have been registered by the current relay, cease to exist and the fields of the alternator and the d.c. machine are again automatically modified to meet the prevailing conditions.

It is important to note that once the mains circuit breaker has been tripped, due to a failure of any description, the mains cannot be re-connected except by manual operation, which of course involves the orthodox synchronising process, and for which purpose the synchronising apparatus is provided on the a.c. control. As soon as synchronising is effected, however, and the mains supply is restored to the load by closing the mains circuit breaker, the fact of closing the breaker automatically stops the engine by de-energising the magnetic clutch and the decompressor and fuel solenoid. A failure of mains supply due to falling periodicity is catered for by means of the centrifugal switch, which automatically trips the mains supply circuit breaker when the speed of the alternator (running as a synchronous motor) falls below 90 per cent. of its normal 1,000 r.p.m.; this operation starts the cycle of operations already described.

Should the engine fail to start due to lack of fuel or for any other reason, the operation is as follows: As previously described, the magnetic clutch is de-energised through the pilot relay, which is energised due to the oil-immersed breaker having dropped out due to mains failure. At the same time the circuit to reverse current relay time lag is completed, and the thermo strip begins to be heated up. The thermo metal becomes distorted due to increase in temperature and is so set that at the expiration of some seconds it permits a trip to come into operation which simultaneously opens the clutch relay circuit, decompressor circuit and breaks its own circuit.

A further provision is made for the protection of anyone working on the engine should the mains fail. Before starting work on the engine, the pilot switch is placed in the " off " position; this ensures that it is impossible for the magnetic clutch to become energised by isolating the clutch coil circuit and completes a circuit to a red warning lamp which indicates that the engine cannot be started automatically due to mains failure. The pilot switch also transfers the decompressor control so that the decompressor mechanism will function in the event of it being desirable to start up the engine by hand for test purposes.

It should be noted that with the pilot switch in the " off " position, it is impossible for the engine to become coupled to the alternator, since the magnetic clutch coil cannot become energised under any conditions. Should the mains fail with the pilot switch in the " off " position, the reverse current relay time lag becomes energised, and the thermo-metal distorted as previously described. The magnetic clutch, of course, cannot become energised, and the d.c. machine will continue to run the alternator until the battery becomes exhausted.

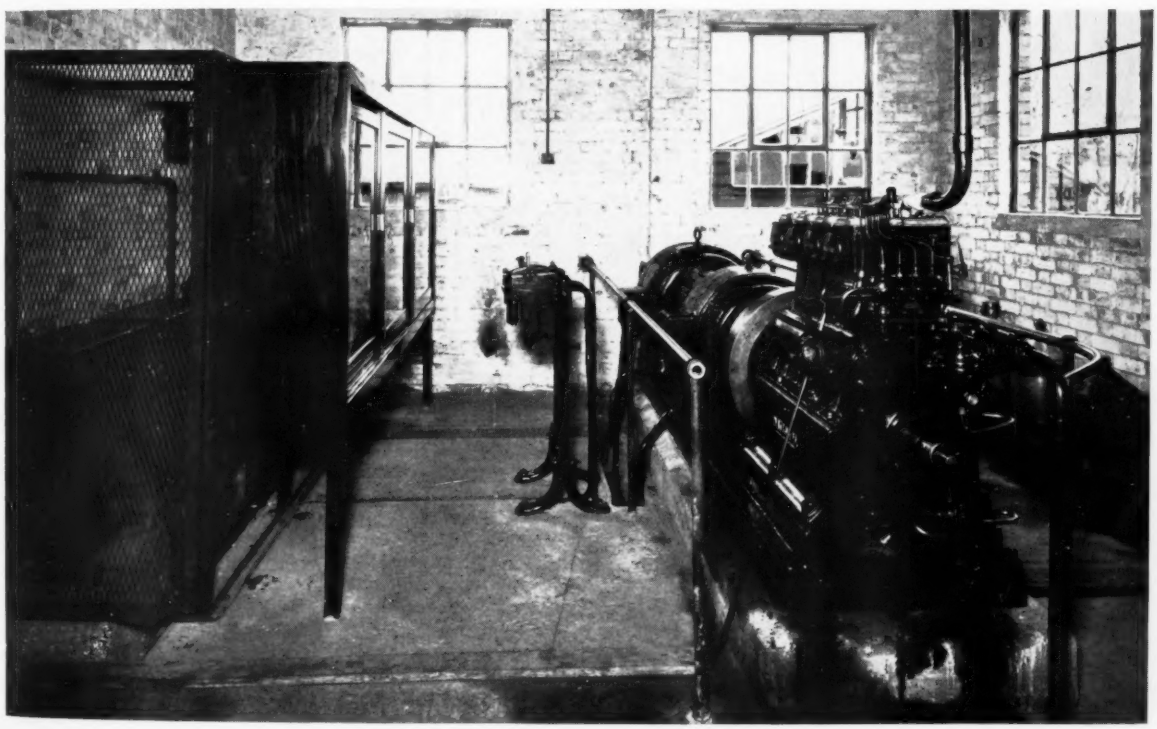
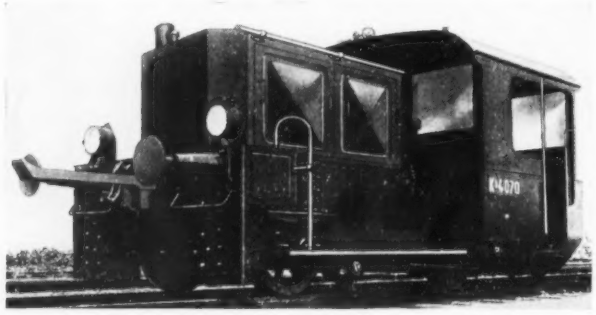


Fig. 5—Power and standby equipment of class (b) at Brentwood, L.N.E.R., briefly described on page 97 of " The Railway Gazette " of January 19 last

LIGHT LOCOMOTIVES ON THE GERMAN STATE RAILWAY

Diesel and petrol-engined loco-tractors effect large savings in shunting costs

SINCE 1929 the German State Railway has been conducting tests on a growing scale with light motor locomotives at wayside stations, and by the end of 1932 the number of such units had reached 85. These were of different makes, and represented various systems in order to gain experience of all systems under service conditions. The regular work of these machines consists in the first place of relieving the high-powered steam engines of long distance goods trains from the necessity of shunting, and in this they proved so highly successful that, on all routes where they were stationed, the resulting increase of travelling speed of the goods trains called for a revision of timetables.



Petrol-engined tractor built by the Berlin Machine Works

Of the first 85 light motor locomotives, 23 were equipped with engines having an output of approximately 25 b.h.p. and about half of them had diesel engines. The remaining machines had engines of 45 to 65 b.h.p. and 34 of these were diesels. The satisfactory experience gained during the three years ending 1932 showed the Reichsbahn authorities that they were advancing in the right direction. A continuance of the old practice of acquiring a large number of various makes was undesirable for economical reasons. Hence it was decided to evolve, in collaboration with the principal German makers, standard types incorporating the best features of the 85 loco-tractors already owned.

Tests had shown that at wayside stations machines with engines of 65 b.h.p. were fully capable of dealing with all shunting work. At some stations, however, even smaller units could cope with the work, and two standard classes, one with 25 b.h.p. engines, and the second with 65 b.h.p. engines, were designed. The larger units being urgently needed, their design was first completed and 600 machines of this type are now on order. Of these, about 450 will have diesel engines of various makes.

The tractors of this class have two chain-driven axles running in roller bearings, and the engines are located on interchangeable sub-frames over the front axles, and drive a four-speed gearbox of special design (with all gears in constant mesh), deep down in the main frame between the axles. Many of the features evolved by the Berliner Maschinenbau A.G. (vorm. L. Schwartzkopff) for the Netherlands Railways since 1926 have been adopted in this standard design. One of these features is the dropped frame behind the rear axle, which enables a particularly low floor for the driver's cab to be fitted. The latter has a complete set of controls on each side within reach of the driver, even when he leans out through the side windows to observe the track in front, and all-round visibility is given through large windows. Electrical equipment includes lighting and a starting motor. The machines weigh approximately 16 tons, and cost, with petrol engines, approximately 20,000 RM., and with diesel engines 22,000 RM.

It has been calculated that the general introduction of these loco-tractors, which attain a maximum speed of 19 m.p.h. and can thus also serve several stations along one route if necessary, would bring a saving in shunting expenditure of roughly 50,000,000 RM. per annum as compared with steam engine shunting. These savings are due to:—

a . . . The power of the motor locomotives being more appropriate for the work to be done than that of available steam engines;

b . . . Only one man is required for driving the machine. At small stations this one man can conduct the entire shunting work without assistance, thanks to the excellent speed control of the machines allowing him to bring up one wagon against another ready for immediate coupling. The automatic coupling and uncoupling Schwartzkopff-Witte device fitted on the machines enables the driver to pick up wagons and uncouple them without leaving the cab. The floor being low, the driver can easily alight to couple together two wagons.

c . . . The main-line trains are speeded up, owing to the wayside stopping time being so greatly reduced. This means reduction of working hours for the entire rolling stock, faster circulation of the same, and ultimately reduced numbers of wagons and locomotives.

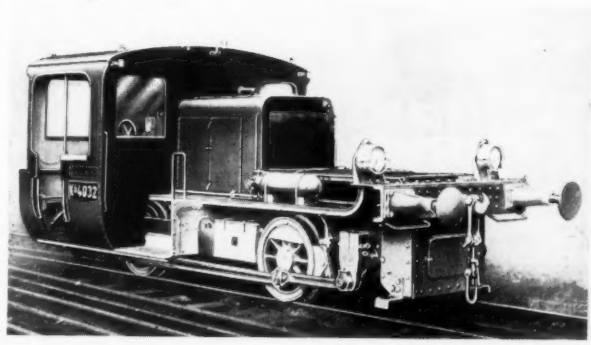
d . . . For the same reason also the working hours of train attendants, consisting generally of one chief guard and two assistants, are reduced.

The use of loco-tractors also brings savings not easily calculable, such as all-round improvement of services due

M.A.N.-engined diesel shunter built by Krauss-Maffei

to the tracks being less obstructed by goods trains, the engines of which are shunting on wayside stations. Cases are on record where, owing to the speeding-up of trains, wagons meant for coupling to a later train have arrived at a junction so early that they could be included in the preceding train, and where for such reasons trains could be dropped altogether. Difficult to estimate, also, is the saving in administrative work achieved.

The extent of effected savings becomes more evident when one considers some actual figures. Investigations made in 1929 disclosed that at 2,426 German wayside stations steam train locomotives were occupied on the average for 3 hr. 40 min. daily, shunting wagons while the trains stood still. The daily total of shunting hours of these heavy machines alone amounted to 8,921, representing an expenditure of 232,000 RM. a day, or approximately 70,000,000 RM. a year. In addition to these heavy steam engines, lighter steam shunting locomotives did service on these stations to the extent of 2,000 hr. each day at an expenditure of 32,000 RM.



Two-stroke Jung loco-tractor of 50 b.h.p.

Loco-tractors under erection at the Berlin Machine Works

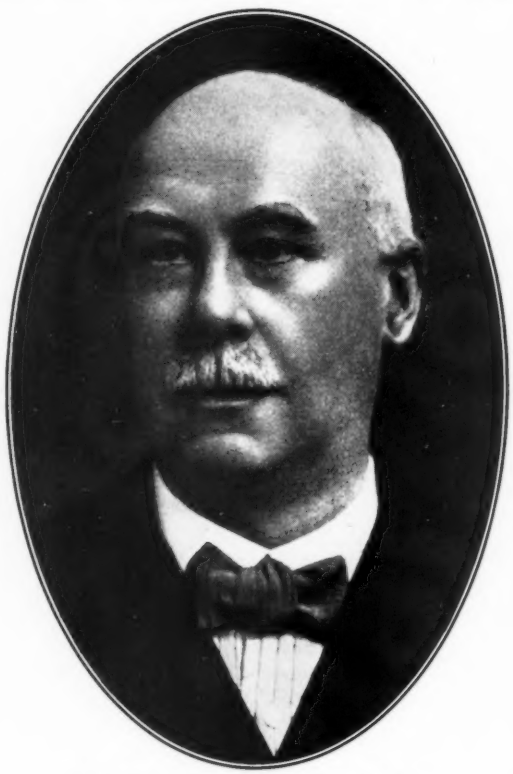
The shunting work performed by these big steam engines can be accomplished by the light motor locomotives at a fraction of the cost, although the latter generally require a slightly longer time. The actual over-all costs vary considerably, as they depend on various circumstances, especially on the utilisation factor. Generally the total costs remain under 4 RM. an hr. in the case of diesel-engined machines and 6 RM. for petrol-engined tractors. At stations with a particularly high utilisation factor, *e.g.*, at Alfeld in the Kassel district, where a diesel-engined machine works 17 hr. a day, the cost per hr. falls as low as 1·8 RM., including depreciation, interest, maintenance, fuel, &c. The daily cost comes to 30·6 RM. Picking out random examples from official figures, it is found, as an example, that at Lüdinghausen station a saving in shunting costs to the extent of 41,405 RM. was effected during the first year of a loco-tractor's operation. The tractor worked eight hr. a day at a cost of 6·03 RM. an hr., the engine being of the petrol type. The total costs for this machine for the year were 14,470 RM. Previously the work was accomplished in seven hr. by train engines at a cost of 26·25 RM. an hr., and 54,975 RM. for the year. As on the average 20 wagons could leave 1½ hr. earlier, constituting a saving at the rate of 0·10 RM. per wagon an hr., an additional saving of 900 RM. per annum was effected.

The Last Day on the Manifold Light Railway

Scenes on the light railway on Saturday last. On the left the train is seen arriving at Waterhouses, and on the right is a general view of the Hulme End terminus. (*See article on page* 472)

Frank Tatlow

We record with regret the death, on March 13, of Mr. Frank Tatlow, C.B.E., the last General Manager of the Midland Railway. He had been associated with the General Manager's Department from the time when he entered the company's service as a boy in April, 1875. Mr. Tatlow came of a Midland Railway family. His father and two of his uncles were in the service, and his cousin, the late Mr. Joseph Tatlow, who was for many years Manager, and afterwards a Director, of the Midland Great Western Railway of Ireland, also commenced work at the Midland headquarters at Derby. Another relative, Mr. A. H. Tatlow, from 1910-30 Publicity Manager, South African Government Railways, was for some years in British railway service. Working his way step by step in the Midland Railway service, Mr. Frank Tatlow became in 1908 Parliamentary Assistant to the General Manager, for a short time in 1915 he was Principal Assistant to the General Manager, and towards the end of that year he was appointed to the new position of Assistant General Manager, subsequently taking the title of Deputy General Manager. On the retirement of Sir Guy Granet at the end of 1918, Mr. Tatlow was appointed General Manager, holding that office until December 31, 1922, when he retired. He had the distinction of having been personally connected with five General Managers of the Midland Railway: Sir James Allport, Mr. John Noble, Mr. G. H. Turner, Mr. John Mathieson, and Sir Guy Granet. Mr. Tatlow became a member of the Railway Executive Committee, which was responsible for the management of the British railways during the war, and subsequently became a member of the Railway Advisory Committee associated with the Ministry of Transport. He received the honour of C.B.E. in January, 1918. He was unanimously elected Chairman of the General Managers' Conference for the year 1922, when he was also Chairman of the Board of Management of the Railway Benevolent Institution.



The late Mr. Frank Tatlow, C.B.E.,
General Manager, Midland Railway Company, 1918–22.

On his retirement Mr. Tatlow was presented by his office staff with a gold watch and a gold and platinum albert. Mr. W. Clower, in making the presentation, said it was due, in a large measure, to Mr. Tatlow's force of character and strength of will, coupled with the fact that during the whole of his career he had been in the heart of things, that he had reached the high position which he was then relinquishing. After his retirement Mr. Tatlow maintained a close connection with railway matters. He was appointed in 1923 a Member of the Northern Counties Committee (Ireland), and a Director representing the London Midland & Scottish Railway Company on the Cheshire Lines Committee, retaining these appointments until his death. In 1925 he was appointed Consultant to the General Manager and to the Board of the L.M.S.R. He was also Chairman of Carpet Trades Limited and of G. R. Turner Limited, and a Director of the British Soda Co. Ltd., of the Staveley Coal & Iron Co. Ltd., and of the Yorkshire Main Colliery (1923) Limited. Like most railway officers at home and abroad Mr. Tatlow was a regular reader of THE RAILWAY GAZETTE. Only a few weeks ago he wrote us: "Your paper becomes more interesting week by week, and I hope your sales are increasing by leaps and bounds."

Tributes to Mr. Tatlow's work were on more than one occasion publicly made by his directors. At the annual meeting of the Midland Railway Company in February, 1922, Mr. Charles Booth, the then Chairman, told the shareholders: "You owe more to Mr. Tatlow than you have any idea of. His long experience, great ability, and splendid enthusiasm have been unreservedly devoted to your interests. A better man to work with I have never met." Sir Guy Granet, presiding at the special general meeting on November 24, 1922, when the amalgamation scheme under the Railways Act was approved, said that, in his opinion, by no means the least of the services which Mr. Tatlow had rendered to the Midland Railway Company had been in conection with the negotiations on the terms of amalgamation, where he (Mr. Tatlow) had shown a knowledge, patience and address which had made it possible to come to a satisfactory agreement.

Again, Sir Guy Granet, when presiding at the last ordinary general meeting of the Midland Railway Company on February 22, 1923, said: "Mr. Tatlow has told us, as you know, for a considerable time past that when the Midland Railway came to an end he would regard his railway career as closed. Mr. Tatlow is Midland through and through, and I do not think it is possible for him to contemplate railway work except under the banner of the Midland Railway Company. . . The work he has done is beyond anything I can describe to you. It is worth far more than I can put into pounds, shillings and pence. He retires in the fullness of his powers."

An Appreciation

Sir Guy Granet writes the following appreciation:—It is indeed a grief for all of us who were associated with Frank Tatlow on the old Midland Railway to know that he has passed away. Perhaps more than most people I had opportunity and reason to recognise and appreciate and to be grateful for his outstanding qualities.

As a railway man, though in later days his love for his old company and his loyalty to its old traditions made it difficult for him to attune his mind to the changed conditions brought about by the Amalgamation Act, he was outstanding. He had the rare quality of never allowing his exceptional knowledge of detail to obscure his judgment. As an assistant, I have never known his equal for disentangling a mass of detail, never missing a material point and presenting his case in such a way as to make it easy to come to a decision.

As a man, he was an entirely lovable personality. Under the cloak of a certain bluntness he tried and failed to conceal the most affectionate and loyal heart which made his friendship—once given—a thing to be treasured and depended on. To us who knew him he leaves a gap which can never be filled. *Ave! atque Vale!*

W. GUY GRANET

RAILWAY NEWS SECTION

PERSONAL

Lt.-Col. H. A. Hull retired from the position of District Engineer, Northampton, L.M.S.R., on December 15 last, which he had held for the past 10 years. He began his career nearly 50 years ago at Bow locomotive shops, North London Railway, as a pupil there and also subsequently to the Chief Engineer, L.N.W.R., at Euston.

It is with regret that we record the death on March 11 after a very short illness of Lieut.-Colonel E. P. Anderson, D.S.O., R.E. (ret.), Inspecting Officer of Railways, Ministry of Transport and late Deputy Chief Engineer, North Western Railway, India. Colonel Anderson, who was 50 years of age, entered the Royal Military Academy, Woolwich, in 1900 and received his commission as 2nd Lieutenant in 1901, when he went to the

Elliott] *[& Fry*

Lt.-Col. H. A. Hull, M.Inst.C.E.

District Engineer, Northampton, L.M.S.R., 1923-33

Lafayette] *[London*

The late Lt.-Col. E. P. Anderson, D.S.O., late R.E.,

Inspecting Officer of Railways, Ministry of Transport

Mr. J. N. Peck, M.C., B.A., A.M.I.C.E.

Appointed District Engineer, Blackburn, L.M.S.R.

After experience in the drawing office, he was appointed Assistant Resident Engineer on the Daventry-Leamington construction. Subsequently he was promoted Resident Engineer in charge of the northern section of the Ashbourne - Buxton construction, on which there were many heavy works. Colonel Hull's next duties included charge of various widenings on the Trent Valley line and the preparation of schemes for others. While supervising the construction of the Coventry avoiding line, he became a M.Inst.C.E., having previously been a Student and then an Associate Member. During the war he recruited, trained, and took into action a Territorial Battalion of the North Staffordshire Regiment, and, after being invalided, commanded a Railway Construction Company in France. On his return, he became Divisional Engineer, Rugby, L.N.W.R., and, upon the amalgamation, his charge became the Northampton District of the L.M.S.R., from which he has now retired.

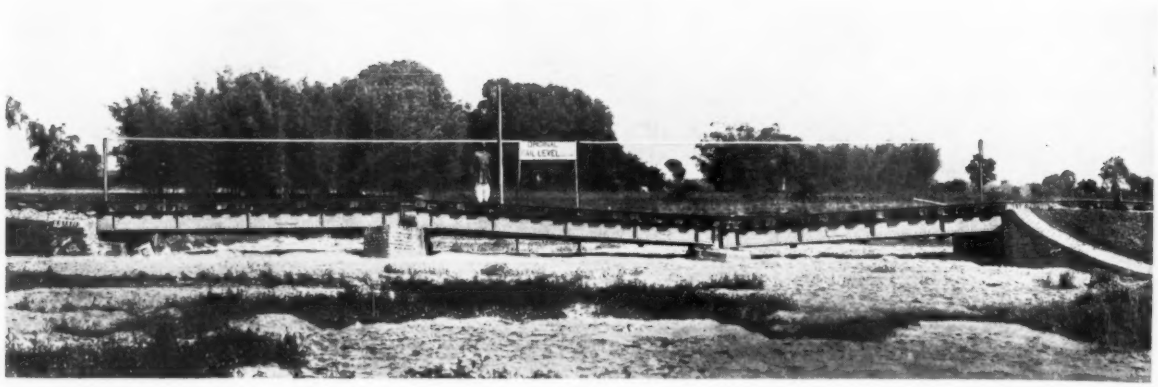
School of Military Engineering at Chatham. He afterwards took a course of Mechanical Engineering at Chatham Dockyard and completed it in the Locomotive Department of the N.W.R., India. In 1904 he joined the Engineering Department of that railway as an Assistant Engineer, becoming Executive Engineer in 1912. When war broke out he was ordered to England and for nearly two years was Adjutant to Major N. Wilson, Railway Construction Engineer, No. 2, under the Chief Railway Construction Engineer. Colonel Anderson was subsequently Railway Construction Engineer in the 4th Army Area, being awarded the D.S.O., made a Chevalier of the Legion of Honour and mentioned three times in despatches. He returned to India in 1919 and in 1921 was given charge of No. 1 Division of the Khyber Railway Construction, succeeding Col. Sir G. R. Hearn, as Engineer in Chief in 1922. After the completion of that work, Colonel Anderson's duties varied from Divisional Superintendent to Deputy Chief Engineer (open line) on the N.W.R., until he retired as Lieut.-Colonel in January, 1929. His original mechanical training, coupled with engineering construction and maintenance service, and a knowledge of railway operating gained while Divisional Superintendent, gave him a variety of experience which stood him in good stead when he was appointed Inspecting Officer of Railways, Ministry of Transport upon his retirement. The funeral took place on Wednesday, March 14, at Hampstead Parish Church, the service in the church being read by the Vicar, the Rev. H. T. Carnegie, and the committal prayers by the Rev. Charles H. R. Baldwin, Vicar of St. Luke's, Holloway, in the adjacent churchyard. Among those present were:—

Colonels A. H. Mount, A. H. C. Trench, W. G. Tyrrell and E. Woodhouse, Messrs. V. M. Barrington-Ward, F. S. Bond, C. Carslake, A. R. Cooper, F. Downes, S. L. Glenn, K. W. C. Grand, J. L. M. Moore, C. W. Morkill, E. W. Rowntree, C. E. R. Sherrington, O. W. Watkins and H. Raynar Wilson.

Mr. J. N. Peck, who, as announced in THE RAILWAY GAZETTE of March 9, has been appointed District Engineer, Blackburn, L.M.S. Railway, was educated at Sedbergh and Caius College, Cambridge. He entered the service of the Lancashire & Yorkshire Railway Company at Manchester in 1909 as a pupil with the late Mr. D. C. Rattray, Chief Engineer, and in 1914 took charge

Some Results of the Earthquake in India

(*See also page* 452)



Damage to bridge No. 168 *on the Katihar-Jogbani section of the Eastern Bengal Railway. It will be seen that the rail level before the earthquake was some* 5 *ft. higher than after it, the whole bridge and its approaches subsiding bodily*

Damaged bridge No. 185 *on the Jogbani branch of the E.B.R.*

Damage to track on the Purnea-Muriganj section of the E.B.R.

Jamalpur station, East Indian Railway. Prior to the shocks the platform line on the right was roofed in similarly to that on the left

of the reconstruction of Waterloo Road station, Blackpool. During the war, throughout which he served with distinction, he was awarded the M.C. and was promoted Lieutenant-Colonel in 1916. Upon demobilisation he returned to the L. & Y. Railway. Mr. Peck was appointed Assistant to the District Engineer at Bradford in 1924, and in 1928 became Engineer in charge of Divisional Bridge Repairs. In 1931 he was promoted to be Principal Assistant to the Divisional Engineer at Manchester, from which position he now goes as District Engineer, Blackburn.

Mr. Arthur Terence Maxwell, a partner in Glyn Mills & Company, was appointed a Director of Vickers Limited at the board meeting held on March 8.

Sir Josiah Stamp has returned from Stockholm, Oslo, and Berlin. He visited the Crown Prince of Sweden, who, with the Crown Princess, attended his lecture to the Swedish-British Society.

The Right Honourable Lord Ashfield, of Southwell, P.C., and Colonel R. E. B. Crompton, C.B., F.R.S., R.E.(T.), have been elected Honorary Members of the Institution of Civil Engineers.

Sir Robert Greig, M.C., LL.D., D.Sc., who is retiring from the Secretaryship of the Department of Agriculture for Scotland on March 31, has been appointed by the Board of the L.M.S. Railway Company to be a Member of their Scottish Local Committee. Sir Robert has a very wide knowledge of all Scottish affairs, which has been gained through his experience of agriculture on its educational side, in the administration of the Landholders Acts, as Chairman of the Forth Conservancy Board, as a member of various Agricultural Commissions, and in other public duties.

We regret to record the recent death of Sir Thomas Ryan, C.I.E., at the age of 55. Born in County Cork he was educated at the Royal Indian Engineering College, Coopers Hill, and joined the Indian Public Works Department on the accounts side in 1898. Rising to be Examiner of Accounts within nine years, he was appointed Assistant Accountant General, Railways, in 1910 and Secretary to the Railway Board in 1913. During the war he was successively Secretary and Member of the Indian Munitions Board and subsequently became Financial Adviser to the Railway Board in 1920. Towards the end of that year he was appointed Secretary to the Acworth Commission on Indian railways. In 1921 he was appointed Director General of Stores at the Office of the High Commissioner for India, London. *The Times* says:—"He filled the post with admirable judgment at a time when the Indian Legislature was pressing on Government the policy of buying in the cheapest market . . . ," and summarises his career as that of "one of the ablest and most versatile members of the public services in India." Mr. Ryan subsequently became Chief Controller of Stores, Indian Stores Department, and finally Director General of Posts and Telegraphs in 1931, being knighted in January, 1933.

BEYER PEACOCK & CO. LTD.

The board of this company has been reorganised and now consists of the following, viz.:—

Mr. C. T. D. Burchell, Chairman.
The Right Hon. Sir F. S. Jackson, G.C.S.I., G.C.I.E., P.C.
Mr. Geoffrey Marks, C.B.E.
Mr. C. H. Pearson.
Mr. H. Robertson, J.P.
Captain Hugh Vivian, M.I.Mech.E.

We regret to record the death, on March 5, of Mr. D. McLellan, who retired from the position of Divisional Engineer, Scotland, L.M.S.R., in October, 1931. He was educated at Glasgow High School and University, and after gaining experience in the bridge-building works of Arrol Bros., and with other firms, was appointed Assistant in the office of Brunlees & McKerrow, Civil Engineers, London. He was afterwards engaged on the staffs of several well-known contractors at home and abroad and temporarily in the construction of the Glasgow Central underground railway and the Lanarkshire & Dumbarton line. He became later Chief Assistant to the Engineer of the London, Tilbury & Southend Railway, and was engaged in the maintenance of the line and the construction of new works. After some years, Mr. McLellan left the London, Tilbury & Southend Railway for the engineering staff of the Caledonian Railway, and for a time was Resident Engineer of the Glasgow Central station extension. Subsequently he was Chief Assistant Engineer for new works of the Caledonian Railway at Glasgow before taking up the duties of Engineer for the Southern and Eastern Districts, which position he occupied until 1923, when he was appointed Divisional Engineer for Scotland, Glasgow, L.M.S.R. Between then and his retirement he was responsible for many important engineering works including the re-alignment of Mossgiel tunnel and the reconstruction of many bridges.

Monsieur Charles Cazenave has been appointed correspondent of the Orleans and Midi Railways of France in Great Britain, with offices at Victoria station, London, in succession to Monsieur J. B. Verlot, who has returned to Paris on his appointment as an Assistant to the General Traffic Manager.

Mr. J. Thornton, who retired from the service of the London Passenger Transport Board on December 31 last, has been presented by the Railway Clearing House Superintendents' Conference with a dark oak bureau as a token of the esteem and regard in which he was held by members of the conference. As Mr. Thornton was unable, owing to ill-health, to receive the presentation in person, a suitable communication was sent to him on behalf of the subscribers.

Mr. E. F. Cornilliac, First District Engineer, Engineering and Maintenance Branch, has been appointed Maintenance Engineer, Government Railway, Trinidad.

INDIAN RAILWAY STAFF CHANGES

Mr. D. H. Keelan, Deputy Chief Commercial Manager, E.I. Railway, has been granted leave for 4½ months, preparatory to retirement, as from February 15.

Mr. E. Ingoldby is confirmed as a Deputy Chief Mechanical Engineer on G.I.P. Railway.

Mr. B. Moody has been appointed to officiate as Divisional Superintendent, N.W. Railway, as from January 10.

Forthcoming Meetings

Mar. 27 (*Tues.*).—**Ottoman Railway from Smyrna to Aidin** (Half-Yearly), Winchester House, Old Broad Street, E.C.2, at 11 a.m.

April 6 (*Fri.*).—**North Devon and Cornwall Junction Light Railway Company** (Annual General), Central Station, Exeter, at 3 p.m.

May 2 (*Wed.*) —**Canadian Pacific Railway Company** (Annual General), Montreal, at 12 noon.

Forthcoming Events

Mar. 16 (*Fri.*).—Institute of Transport (Manchester-Liverpool), at Midland Hotel, Manchester, 6.30 p.m. "A General Survey of Traffic Management," by Mr. R. W. Royle.

Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, 6 p.m. "Mechanics of Electrical Switchgear," by Mr. H. Trencham.

Railway Students' Association (Edinburgh), at Goold Hall, St. Andrew Square, 7.30 p.m. "The Development of Modern Signalling," by Mr. A. Moss.

Southern Railway Pupils and Premium Apprentices Association, at Charing Cross Hotel, London, W.C.2. Annual Dinner.

Mar. 20 (*Tues.*).—Institute of Transport (London), at Inst. of Electrical Engineers, Savoy Place, W.C.2, 6 p.m. "The Economics of Mechanisation," by Mr. M. A. Cameron.

Mar. 21 (*Wed.*).—Institution of Locomotive Engineers (London). Visit to Ford Motor Works, Dagenham, 1.15 p.m

Mar. 22 (*Thurs.*)—G.W.R. (London) Lecture and Debating Society, in General Meeting Room, Paddington Station, 5.45 p.m., "A Passenger's Criticism of British Railways" by Mr. G. N. Mount. Chairman, Mr. J. A. Kay, Editor of THE RAILWAY GAZETTE.

Mar. 23 (*Fri.*).—L.N.E.R. Musical Society, at Hamilton Hall, Liverpool Street, London, E.C.3. Bohemian Concert.

Mar. 27 (*Tues.*).—Institute of Transport (Scottish), at Royal British Hotel, Princes Street, Edinburgh. Visit of the President.

Great Eastern A.A.A., at Hamilton Hall, Liverpool Street, London, E.C.3, 6.30 p.m. Boxing Championships.

Mar. 29 (*Thurs.*).—Railway Students' Association (Edinburgh), at North British Station Hotel, 7 p.m. Annual Supper.

Retired Railway Officers' Society

Mr. Gerald Loder as guest of honour

Mr. E. A. Clear (President) was in the chair at a luncheon of the Retired Railway Officers Society held on March 8 at the Abercorn Rooms, London. Members of the Society and visitors present included:—

Messrs. A. Allenby, F. S. Bridge, W. Brown, J. Barber, J. F. Bradford, A. R. Bell, F. G. Barriball, Major A. Clear, Messrs. G. Clear, E. A. Clear, T. Christopher, O. H. Corble, W. J. Clayton, C. Childs, E. Cox, C.B.E., M.V.O., G. J. Chesters, T. Chew, H. R. Campfield, C. T. Cox, E. Crofts, P. J. Dowsett, R. G. Davidson, G. Cole Deacon, H. W. C. Drury, A. E. Dolden, F. W. Dingley, A. F. Dymant, G. L. Derbyshire, H. G. Drury, M.V.O., W. J. England, H. Ferguson, Major G. N. Ford, O.B.E., Messrs. C. Everard Greene, H. J. Guest, K. W. C. Grand, E. Gouldborn, H. Gouldborn, Sir Harold Hartley, C.B.E., F.R.S., Messrs. W. H. Hyde, A. Howie, A. E. Hammett, G. T. Hedge, O.B.E., G. Hughes, C.B.E., E. B. Hassall, W. E. James, W. A. Jepson, J. A. Kay, Gerald W. E. Loder, LL.B., J.P., D.L., D. R. Lamb, F. W. Lampitt, J. W. Lovejoy, Dr. G. MacMahon, Lt.-Col. Sir Charles Morgan, C.B.E., Messrs. G. Morton, K. C. Marrion, E. W. Mauger, H. J. Moore, F. B. Mortimore, A. S. Mills, T. Moffet, H. Marriott, C.B.E., C. H. Newton, R. H. Nicholls, C.B.E., E. E. Pointer, E. Prebble, A. Puleston, A. P. Parker, L. P. Parker, J. Pike, O.B.E., C. P. Parker, P. H. Price, O.B.E., F. R. Potter, F. K. Pelly, D. Poyntz Ricketts, S. J. Roberts, A. P. Ross, J. E. Ryan, L. Roberts, J. Roughton, F. Ruffell, A. E. Sewell, O. F. A. Sandberg, T. Smith, J. Shearman, S. V. Smith, G. G. Senior, O.B.E., J. B. Scattergood, T. H. Shipley, J. Procter Smith, R. H. Todd, A. Turnbull, E. Taylor, W. A. Thomas, M. C. Tart, G. F. Thurston, J. Thompson, H. Thompson, W. T. Venton, F. J. Webster, F. Warriner, F. H. Willis, H. H. Wheeler, S. L. Walker, Sir Arthur Watson, C.B.E., LL.D., Messrs. A. Walker, P. Wharton.

The President, in proposing the toast of "Our Guests," said the members of the society sympathised with the railway officers of to-day. In the past the now retired officers had had their difficulties—strikes, the war, and lack of cash. Now the great difficulty was road competition. Continuing, he referred to the bold enterprise of the Southern Railway not only in extending their great dock undertaking at Southampton in a time of great depression, but in the extension of their electrification which had proved so great a success. The retired railway officers were greatly honoured by the presence at their luncheon of Mr. Gerald Loder, the Chairman of the Southern Railway.

Mr. Gerald Loder, in replying, said he had completed forty years' service as a railway director and few could feel more gratitude to past railway officers than himself. When he joined the board of the London Brighton & South Coast Railway the chairmen of three undertakings which were now merged in the Southern Railway were Samuel Laing, Sir Edward Watkin, and James Staats Forbes. He remembered at the first general meeting of the Brighton Company he attended as a director Mr. Laing remarked that the ratio of working expenses to revenue was 52 per cent., but said the stockholders need not be alarmed as it always went back to 50! He need not remind them what the ratio was to-day! Referring to changes that had taken place in the railway world, he regretted that the directors to-day were not brought so closely into touch with the officers (except the very chief officers) as was the case with the smaller undertakings of pre-grouping days. There were several retired railway officers on the board of the Southern Railway. One of them was present at that gathering in the person of Sir Charles Morgan, who for many years was Chief Engineer of the Brighton Company. In his opinion there were no more valuable members of a railway board than retired railway officers. In conclusion, he referred to the presence of Mr. H. G. Drury, a former Superintendent-of-the-Line of the Great Eastern Railway (looking at the age of 93 one of the youngest men in the room) and of Mr. R. H. Nicholls, who until last year was Superintendent-of-the-Line of the Great Western Railway.

Sir Harold Hartley, Vice-President, L.M.S.R., in proposing "Success to the Retired Railway Officers' Society," referred to the extraordinarily warm welcome he had received when he came to the railway a few years ago and the wonderful spirit of comradeship that existed among railwaymen. The Retired Railway Officers Society was the embodiment of that spirit of comradeship. Referring to the changed conditions the railways were experiencing, he said these were being built on foundations that had been well and truly laid by the retired railway officers.

Sir Charles Morgan, in responding, said the retired railway officers most certainly appreciated the compliments that had been paid them. Possibly when some particularly difficult problem had to be solved the subject might be referred to a committee of retired officers! The toast of "The President" was proposed by Mr. H. Marriott and seconded by Mr. H. G. Drury. Mr. Clear briefly replied, and the proceedings terminated.

Parliament and the Salter Report

In a paper read to the York Railway Lecture and Debating Society at a recent meeting, Mr. P. A. Harverson, Assistant Passenger Manager of the North-Eastern Area, L.N.E.R., gave an analysis of the road and rail problem and dealt with the attitude of Parliament to the Salter Report. Referring to the fact that the annual cost of road maintenance has now reached the figure of £65,000,000, Mr. Harverson said, "the question of how the £65 millions should be apportioned, and what other liabilities Road Transport should incur for the privilege of using the highway as its trading premises is really the crucial factor of the rail and road problem. Fundamentally, therefore, it is a question of preparing an accurate costing system. When such a system has been devised and when the State holds the scales evenly between the two forms of transport, we shall know for the first time which form is really the cheaper." Mr. Harverson quoted some of the findings of the Royal Commission on Transport of 1928, particularly the clause which has since become the mainstay of road operators in their opposition to the increased charges upon them proposed by the Salter Report—namely, that at that time road vehicles were "not paying too little and were not paying too much." The Salter report did something to redress the balance and the Government's attitude to its recommendations was epitomised in the Road and Rail Traffic Act of 1933. Speaking of the multiplicity of regulations limiting the granting of licences to road hauliers, Mr. Harverson described them as "involved and confusing" and neatly summed up his views as to their practical benefit and applicability by suggesting that those charged with their administration would, like the M.P.s in "Iolanthe," be obliged "to leave their brains outside and act just as the Sections tell 'em to."

A question of great interest to the railways is that of bridge maintenance. The Act provides for the limitation of permissible loads on road over-bridges, but makes no provision for relieving the companies of the burden of maintenance, as was recommended in the Salter Committee's report. "The Act is silent on this point," said Mr. Harverson, "and I am afraid it is not that type of silence which implies consent." But the most vital clause, in Mr. Harverson's opinion, is that enabling the railway companies to enter into contractual arrangements with firms for the carriage of whole or part of their merchandise instead of separate contracts for each consignment at the published rates. Of this he said "My view is that it is a potent weapon in the hands of railways against road competitors, but I can also see that it may recoil in the hands of traders with equal force against railways, and I deplore such radical departures from the time-honoured principles of rate construction." Commenting on the third part of the Act, which establishes a Traffic Advisory Council, Mr. Harverson said he was not sanguine it could ever do any real good except furnish us with an example of that old Latin adage, *quot homines tot sententiæ*, a free translation of which might be, he added, "as many interests, so many opinions."

Colour Light Signalling from an Operating Point of View

The development of colour light signalling has already set a number of operating problems. Their character and the most promising approaches to their solution were discussed by Mr. C. M. Jenkin Jones, M.Inst.T., Superintendent, North - Eastern Area, L.N.E.R., in a paper read to the Institute of Transport on March 12. Mr. William Whitelaw, Chairman of the L.N.E.R., was in the chair.

Mr. Jenkin Jones insisted at the outset that the purpose of signalling is restrictive. Its positive indications are those which tell the driver when to reduce speed and when to stop. Theoretically, the all-clear signal is unnecessary. In practice it is justified by the fact that the human element is psychologically averse to relying on the absence of danger indications and demands an additional, and redundant, assurance of liberty to proceed. But the point of view that the red signal gives the positive order to stop, whereas the green signal indicates that a stop or reduction of speed is not necessary, is the right one from which to examine signalling problems.

The object of any signalling scheme is to increase average speed of operation as far as is consistent with safety and economy. The advantages of electrical operation in all these respects have already been demonstrated in practice. The questions demanding most serious consideration at the present time are those of the principles to be followed in the aspects of the signals and the provisions which should be made against the failure of the lights.

Discussing the design of multiple-aspect systems, Mr. Jenkin Jones pointed out the confusion that may arise when such signalling is in juxtaposition to the two-aspect semaphore method. Whereas in multiple-aspect systems a green light guarantees at least two clear sections ahead, the same colour in the two-aspect semaphore system may be immediately followed by a red "stop" signal. It is therefore desirable that some form of indication should be standardised to warn drivers of the system in force in the area in which they are travelling. Discussing the expedients that have so far been adopted, Mr. Jenkin Jones criticised the red marker light method on the grounds that it fails to provide for the one case where ambiguity exists. While showing the driver that he is in a colour light area when the signal to which it is attached is at "stop" or "caution," it is extinguished when the ambiguous green signal appears. Another objection to its use is that when displayed with the "caution" indication, it sanctions a driver passing a red signal applying to his own track, thus being a partial reversion to the state of affairs obtaining before the two-aspect semaphore distant signal was provided with a yellow spectacle to distinguish it in the "on" position. Against this, the supporters of the marker light urge the variety of purposes it can be made to serve, such as indicating whether a signal is entirely automatic or can be controlled from a box, or to form an auxiliary signal showing red if the ordinary light should fail and so doing away with the necessity of light repeating circuits in signal cabins.

Among the other solutions that have been put forward, Mr. Jenkin Jones considered that the simplest and most promising was to rely on the greater brilliancy of the colour light indication to inform a driver that he was in such an area. A powerful green light would then guarantee two clear sections ahead, while on passing a similar semaphore indication he would be prepared to pull up at the next post.

With regard to multiple indications, Mr. Jenkin Jones expressed the opinion that proposals for their introduction, particularly when the use of two colours was involved, should be examined very critically, as being a possible source of undesirable complications. The double yellow, however, as interpreted on the L.N.E.R. and L.M.S.R., had been made to serve a useful purpose. Here, in addition to providing an extra warning to the driver when there is not a full braking distance between the two signals ahead, it may, in the case of junctions, lead up to a green light but warn the driver that he has to negotiate a turnout.

The question of junctions was one of the strongholds of the supporters of the red marker light. Replying to the criticism that the use of this light involved the passing by drivers of red indications applying to the track on which they were running, they pointed out that this occurred in any case at junctions. Mr. Jenkin Jones, however, suggested that this difficulty might be overcome by the use of neon-tube route indicators, which could be easily read at speed. A similar effort, aimed at overcoming the same theoretical difficulty, is being made by the provision of position white light shunting signals to replace the old red and green indications. These can be properly ignored by drivers having the running signals.

But there are occasions when, owing to signal failure, a driver is obliged to proceed past a red indication. The ideal arrangement in such circumstances would be some system of informing a driver held by a red indication as to whether the delay was due to a signal breakdown or to occupation of the track ahead. Failing this at present, Mr. Jenkin Jones advised the provision of telephones at all automatic signals or a perpetuation of the system whereby a driver is allowed to proceed cautiously past a stop signal after waiting a specified time and signifying his intention of coming forward by a long blast on the whistle.

In conclusion, Mr. Jenkin Jones called for close contact between the railway companies so that standardisation of the principles of colour-light signalling systems should be achieved before any one had committed itself too far for this to be attained without great expense and inconvenience. Summarising the points he had made, he referred to the necessity of providing a reserve light in case one of the main lamps should fail. This might be achieved by a double filament lamp or by an auxiliary red light that would be switched in automatically if any of the others failed. He again urged that the ideal of never allowing a driver to pass a red indication applying to his track should be borne in mind in all schemes of colour light signalling.

(*See editorial article on page* 449)

Questions in Parliament

Bethnal Green Railway Facilities

Mr. Will Thorne (Plaistow—Lab.) on March 12 asked the Minister of Transport, whether he had considered the resolutions sent from local authorities in the East-end of London urging the provision of an underground railway passing through Bethnal Green, that the electrification of the London & North Eastern Railway passing through Bethnal Green should be expedited, and that in connection therewith station facilities should be provided in the vicinity of the former Globe Road station; and what reply he had returned.

Lieut.-Colonel Headlam (Parliamentary Secretary to the Ministry of Transport): My hon. friend has received the resolution referred to and has brought it to the notice of the London Passenger Transport Board and the London & North Eastern Railway Company, upon whom the responsibility for providing any necessary facilities of this kind would rest.

Port and Harbour Charges

Mr. Noel Lindsay (Bristol S.—C.) on March 14 asked the Minister of Transport whether he would institute an inquiry into the reorganisation of the port and harbour system of this country, with special reference to the relations between dock undertakings and railway companies and to the standardisation of charges.

Mr. Oliver Stanley (Minister of Transport): Questions such as those to which my hon. friend refers would appear to be for the consideration, at any rate in the first instance, of harbour authorities themselves.

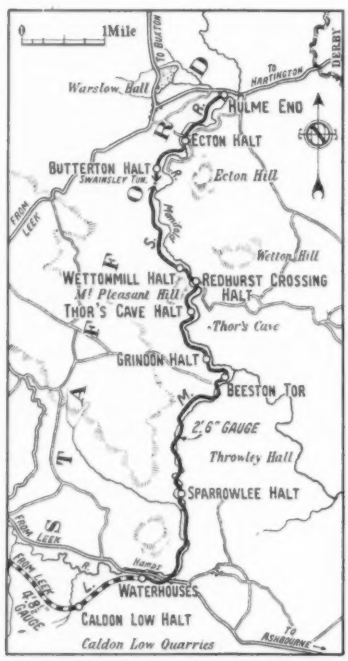
A Five-Year Plan for Turkey.—A plan of industrialisation to be carried out in the next five years was formally approved in January by the Turkish Council of Ministers.

The Last Day on the Manifold Light Railway

FROM A CORRESPONDENT

(*See also illustrations on page* 465)

After an all-night journey from Euston, I found last Saturday morning some half a dozen fellow passengers waiting on the snow-covered platform at Leek station for the 10.50 a.m. train to Waterhouses, whence runs, or at least did run, the little 2 ft. 6 in.-gauge light railway through the Manifold valley to Hulme End. Two of these had come from such distant parts



of the country as Shrewsbury and Coventry to make a last journey on the light railway for, as was announced in THE RAILWAY GAZETTE last week, the L.M.S.R., after receiving last year the sanction of Parliament for the closure of the line, finally decided to abandon it on Saturday last.*

Approaching Leek from Manchester, where a heavy fall of snow had quickly melted away, it was clear from the peculiar glitter on the distant Pennines that higher up the snow was lying thick. Both Leek and Waterhouses were beneath some 3 in., which promised for those who were to make the last journey to Hulme End the good fortune of seeing the Manifold valley, one of the most glorious corners of England, in winter's most beautiful mood.

After much shunting, the little train, composed of one passenger car and two or three goods vehicles, left Waterhouses almost half an hour late with only seven passengers. We were not even promised that the train would never be late again! Evidently the railway was taken seriously at one time during the 30 years of its existence, for, when the train stopped at the Leek-Ashbourne road level crossing and the fireman got down and opened the gates, a signal was automatically operated to tell the driver that he might proceed! Soon, however, we had puffed and rattled through the valley of the Hamps and entered that of the Manifold. Here, in the stillness and silence the snow lay thick, while the tops of the 400-feet valley sides were clothed in a soft white mist. Looking back, the tortuous curves of the railway line were marked out far behind us by a trail of slowly dissipating smoke. Only one stop was made during the eight-mile journey, a passenger alighting at Grindon Halt. The atmosphere of the valley was amazing, and the gaunt pinnacle of Thor's Cave, sinister in its predominance on any other day, rose mysteriously fairylike into the softening mist.

At Hulme End, the terminus, reality returned, for it seemed as if we had passed through a valley of dreams. There was considerable activity here—a place which consists of several cottages and a Light Railway Hotel, now, alas, an anachronism—as after all, even on a light railway the last day of service must have a certain importance. Station equipment had to be collected and returned; incidentally, many of the tickets that were being issued were of the pre-grouping North Staffordshire Railway era. The rolling stock and buildings on the other hand were, so far as the staff was concerned, to be abandoned as they stood, and instructions had been received that the two locomotives, one of which returned from an overhauling at Crewe only three weeks ago, should be greased and left in the sheds. The staff was being transferred to other parts of the L.M.S. system, and a wry smile from a cleaner was the only answer to the suggestion that this might mean rather more work than that entailed in the running of two trains a day.

The time soon came to catch, appropriately and ironically enough perhaps, a bus back to "civilisation," and the last I saw of the late Manifold Valley Light Railway was the little locomotive still fussily shunting—but what, if anything, I could not see, for at that moment the bus lurched round the corner heading towards Buxton.

* See editorial note on page 407 of THE RAILWAY GAZETTE for March 24, 1933.

Railway Policy of Chinese Government

According to a recent statement of policy by Mr. Wang Ching-Wei, the Prime Minister, the Chinese Government is pledged to a policy of economic reconstruction for unifying the nation, the development of railways and other means of communication being one of the most important features of its programme. Proof that the policy of productive reconstruction is much more than an empty phrase was given, he declared, by the Government's achievements during the past two years in the development of railways, first by the construction of new lines, and secondly by the rehabilitation of existing systems, some of which were seriously dilapidated.

Summarising the more important construction items, he pointed out that work upon the Canton-Hankow line which had been suspended for 23 years, had been resumed and would be completed in three years, thereby providing a trunk line connecting North and South China. Meanwhile the Lung-Hai Railway, to be opened on October 10, would facilitate the economic development of the North Western Provinces, and the Chekiang-Kiangsi-Hunan Railway, now being built along the lower reaches of the Yangtze, would bring about closer relations between the South-Eastern Provinces. In addition to these three lines, the Government, Mr. Wang said, had carried out many other improvements and extensions of the national railways; and simultaneously similar work had been undertaken by provincial and private interests in connection with non-State lines.

The Government realised that, to attract foreign investment in Chinese railways, it must give adequate security, while simultaneously maintaining the credit of the railway administration as regards existing obligations. The Government was therefore paying close attention to this matter of credit, and, under specific conditions, it would not only welcome foreign economic co-operation, but exert all the influence within its power to safeguard the interest of creditors. So, although it was not in a position to repay immediately the defaulted instalments on railway loans, it was determined to make satisfactory arrangements for their adjustment, subject to proper safeguards protecting the interests of both parties.

During the past two years the Government had devised measures for the amortisation and readjustment of various domestic and foreign railway loan obligations. These were divided into three classes: (1) railway financing, (2) obligations for materials supplied, and (3) short term loans. The first class included the obligations on the Tientsin-Pukow, the Nanking-Shanghai, the Shanghai-Hangchow-Ningpo, the Taokow-Chingeua, and the Kaifeng-Loyang Railways. Measures of repayment had been devised and some already carried out. Obligations in respect of the

Peiping - Liaoning (Peking - Mukden) Railway had been fulfilled in accordance with the agreement.

Regarding the second class, during the last two years obligations for material already supplied had been readjusted, and definite arrangements had been made with British and American creditors for the settlement of obligations totalling one hundred million dollars. The third class mainly concerned Chinese banks, and measures of amortisation had been devised and already carried out.

Mr. Wang Ching-Wei admitted that not all the Government's railway obligations had been readjusted and amortised, but if the Government continued to follow the policy now pursued, the day was coming when amortisation would be complete. Foreign creditors criticised the Government's failure to meet obligations on maturity, and while regretting that this was true, Mr. Wang called attention to two points—first, that failure was sometimes due to sudden and unexpected developments in the political situation. Such things happened not only in China, but in Europe and America, and it was impossible to blame any one party or circumstance for such failures, since the causes were complicated.

For example, Mr. Wang said, with the outbreak of the Great War various foreign financial groups failed to fulfil the terms of their loan agreements with China, whereupon construction work on several railways was suspended, and heavy Government losses were thereby sustained, because interest on instalments already advanced had to be paid. While creditors were not wholly blamable, it was also true that the responsibility could not wholly be laid at China's door.

Moreover, Mr. Wang continued, owing to world economic depression and the depreciation of silver, the Government's financial obligations had automatically greatly increased, while simultaneously railway revenues had considerably decreased. Since the economic depression and its reactions might be compared to a natural catastrophe against which no country could offer effective resistance, it was scarcely fair to put the blame on China alone.

He also emphasised that the Government had no intention of evading repayment of matured loans and was most anxious to find ways and means of meeting its obligations, but the first essential was a general revival of railway business. With increased revenues available, creditors' interests would be more fully protected and Mr. Wang hoped that foreign creditors would co-operate with the Government to that end. The best proof of the Government's determination to repay foreign railway obligations was afforded by the fact that during the last two years it had discharged many such obligations, thereby showing not only the desire, but the ability, to carry out its pledged word.

A Railway Company's Estate Department

Mr. F. C. Hockridge (Assistant Surveyor and Estate Agent, Great Western Railway) lectured before the G.W.R. Debating Society at Paddington station on March 8 on "The Work of the Surveyor's and Estate Department." Mr. F. R. E. Davis, Secretary of the Great Western Railway Company, presided over a large attendance of members. The speaker said that the work of the G.W.R. Surveyor's and Estate Department was divided into four main sections: valuation, estate, rating, and development and repairs; there were to-day five district areas. At one time the districts were smaller and twice as many, but the present arrangement was found to work well and was believed to be economically sound. An important function of the valuation section was the purchasing of land and other property, generally under powers for compulsory purchase conferred by Acts of Parliament. In the main, the regulations laid down in the Lands Clauses Acts, 1845, still applied, the value of the property to the owner being the basis for compensation to be paid by the acquiring body. Properties of almost infinite variety had to be purchased in connection with large schemes of railway development, and it was necessary for the railway company to acquire all interests, *i.e.*, the freehold, head-lessee, sub-lessee, and occupier.

Valuation was not an exact science, and many and varying considerations had to be taken into account in arriving at a fair figure for purchase price. In the great majority of cases settlement was arrived at by agreement, but failing agreement, arbitration was resorted to. In this connection the lecturer quoted some illuminating figures. In seven arbitrations in the last four years, the selling interests had asked in the aggregate £265,000; the Company offered £107,000; and the arbitrators' awards were £112,500. The sale of railway property surplus to the company's requirements was another important function of the department. Sales might be effected as a result of applications to purchase being received, or upon the initiative of the company. Full departmental co-operation was essential in order to confirm that lands to be sold were not likely to be required for the company's purposes, and also to ensure that traffic-producing possibilities of lands adjoining the railway were fully considered in connection with sales. The lecturer said that sales of land or the granting of permanent easements for the purposes of road improvements, bridge widenings, &c., had been an important feature of the department's activities in recent years.

The prescription of building and improvement lines under Acts of 1925 was a matter that necessitated careful inquiries, and preparation of plans, when such lines affected railway property, and objections were lodged if the proposals were such as to fetter the railway company's statutory undertaking. Similarly, under the Town Planning Acts of 1925 and 1932, it was necessary to consider whether proposals made by local authorities were likely to prejudice the company in the event of land being surplus to railway requirements and therefore available for sale or estate development. Under these Acts, land might be "zoned" for various purposes, *e.g.*, residential, industrial, open public spaces, &c. The Company had frequently to make representations to the authorities in connection with the disadvantageous results which would follow certain kinds of "zoning."

Housing was an important concern of the Estate Department. The Great Western Railway Company owned 5,000 houses, and had assisted employees in housing by means of direct loans to facilitate purchase, and also by the constitution of public utility societies for providing groups of houses to be rented by members. By virtue of ownership, loans to employees, and the promotion of societies, the company was interested in a total of nearly 10,000 houses, mainly occupied by their employees.

The leasing or letting of surplus property to the best advantage was an important concern of the department. The magnitude of this phase of the work was apparent from the latest available figures, which showed that there were 32,600 tenancies let by the Great Western Railway, yielding a revenue of £400,000. Every one of these tenancies was the subject of an agreement, some simple in form, others very complicated. Referring to the development of sites alongside the railway, Mr. Hockridge indicated the valuable nature, not only of the rents but of the railway traffics that accrue to the company as a result of the tenancies.

The speaker had much of interest to say on the subject of rating, and pointed out that in the year 1932 the G.W.R. Company paid no less than £1,300,000 in rates. Frequent Acts of Parliament had made the work in this section exceedingly heavy. Although the important Railways (Valuation for Rating) Act, 1930, which values railways for rating purposes on net receipts, was to operate from April, 1931, the assessment for the G.W.R. had not yet been published, so that the financial effect of the Act remained to be seen.

Dealing last with the development and repairs section, Mr. Hockridge outlined the extremely varied character of the work and said the whole question of adequate maintenance of properties, with due regard for economy, was constantly engaging the attention of headquarters and the district agents.

RAILWAY AND OTHER MEETINGS

GREAT SOUTHERN RAILWAYS COMPANY

The ordinary general meeting of the Great Southern Railways Company was held at the Gresham Hotel, Dublin, on Friday, March 9, Sir Walter Nugent, Bt. (Chairman of the company), presiding.

The Chairman, in moving the adoption of the report, explained that the reconstruction of capital had been in some quarters wrongfully attributed to the initiation or the suggestion of the directors. In the discussions between the company's representatives and the Minister for Industry and Commerce, touching the then pending legislation, the essential condition first proposed and all along insisted upon by the Ministry was a substantial reduction of the capital values of the debenture holdings and of all the other stocks. In submitting to the Minister a report on capital reconstruction which had been prepared for them by experts, the directors had made it clear that they had done so at the Minister's request, and that the scheme had not been considered or adopted by the board. The Minister, nevertheless, incorporated the scheme in his Bill, and passed it into law.

New Legislation

Among the aspects of the Government legislation of 1933, which the directors regarded as unfair, were:—(*a*) Withdrawal of powers previously held by the company to cease or reduce non-paying services on large sections of the system. In future ministerial sanction must be obtained before such powers were exercised; (*b*) compulsory superannuation of the company's employees, involving heavy annual unremunerative expenditure; (*c*) withholding of relief from liability in respect of baronial railway guarantees; (*d*) continuance of liability for rates devoted to public road maintenance. There was no evidence of any demand from shareholders as a body for limitation of the number of directors or for the introduction of ballot voting in their election. The ballot voting scheme caused considerable extra work to the company's officers and involved the company in very substantial annual expense.

As to the rail and road working record of the past year, the most cheering fact was the novel experience of the later portion of 1933, and now becoming fairly regular each week, of increased rail receipts. Certain changes in the accounts dealing with capital and reserves, &c., had been rendered necessary by the reduction of capital in accordance with the Act of 1933, and by the absorption of the two road companies. Following the reconstruction of capital the company no longer provided for renewals each year under a fixed programme, but would charge against revenue account the actual expenditure on a cash basis. The modification of standard revenue was required by Section 5 of the Railways Act, 1933, in consequence of the reduction of capital, and after holding an enquiry, the Railway Tribunal reduced the standard net revenue from £1,169,899 to £561,188.

Although there was a further drop of £172,244 in gross receipts, effective control of expenditure had enabled them slightly to improve their financial position and leave a surplus in excess of the previous year, so that after paying debenture interest there remained a credit balance of £46,208, against £44,995 for 1932. Greater provision was also made for repairs and renewals. The small sum available again made impossible the payment of a dividend on the preference and ordinary stocks, nor was the amount sufficient to pay the outstanding cumulative dividend on the guaranteed preference stocks for either 1932 or 1933.

Road Services

The subsidiary companies for working road services (the Irish Omnibus Company and John Wallis & Sons) were put into voluntary liquidation on November 22, 1933, for the purpose of merging those undertakings with the railway organisation as from January 1, 1934. Both of these companies showed a profit in working for the year. With regard to John Wallis & Sons, although the profit was small, that company had paid its way from the date of taking over, and had incidentally recovered and retained for the railway large volumes of traffic which would otherwise have gone to the roads. The Irish Omnibus Company was on a different footing. By acquiring an interest in the old Irish Omnibus Company and by purchase of most of the important competing companies a vast system was created, which the railway company now completely controlled. Since all the companies were vested under one control, the receipts and profits on the road services showed increases, as well as those of the railway company. Door-to-door delivery by the Great Southern Railways over the entire Free State, by rail and road, was now an accomplished fact, and the railhead delivery services had proved an unqualified success, and were being added to day by day, the net result being to increase greatly the volume of traffic borne by the railway company.

Receipts and Expenditure

Though receipts from railway passengers showed a decrease of £79,258, there was an increase in the numbers travelling of 56,136 first class and 543,765 third class, the average journey being shorter. Week-end short trips had increased and there was a very satisfactory response to the enterprise of the company in developing "sea-breeze" excursions to coastal resorts. There was a decrease in the tonnage of merchandise conveyed of 47,700 tons, and a decrease in receipts of £55,350. Live stock traffic had been disorganised by the imposition of tariffs and a further decrease in receipts of £18,421 had to be recorded.

Total expenditure on permanent way and works charged to abstract A (excluding maintenance of signals and telegraphs) was £434,392, an increase of £30,309 due to essential maintenance and renewal work. In the locomotive, carriage and wagon department the total revenue expenditure amounted to £1,089,282, a net increase of £16,643, repairs and renewals having cost £8,024 more and running expenses £24,667 less. During the year five new tank engines were built at Inchicore and twenty new boilers were fitted to locomotives. In addition, eight double-deck and two ordinary buses were built. Total train miles worked by the company's locomotives during 1933 were 8,657,528, a decrease of 16,736. Under an arrangement with the Department of Industry and Commerce, the company was using approximately 75 per cent. German and 25 per cent. Welsh coal, the importation of the latter being allowed free of duty. The continued use of German coal had in a number of cases seriously affected the running of passenger and goods trains.

The Drumm battery trains continued to give satisfactory service, and they were contemplating their extension, if the necessary financial accommodation could be provided.

After considerable discussion, mostly on the matter of the reduction of capital, the report was declared adopted.

ISLE OF MAN RAILWAY COMPANY

The 64th annual general meeting was held in the company's offices in Douglas on March 7, Mr. A. B. Crookall (Chairman of the company) presiding.

The Chairman, moving the adoption of the report and accounts, said the receipts of £48,989 showed an improvement of £2,122 on 1932. This represented an increase of £1,090 in passenger and parcels traffic, and £1,091 in goods traffic, against which there was a small decrease in rents and transfer fees. During the year, 728,358 passengers (apart from season ticket holders) were carried, an increase of 42,289. The increased revenue from merchandise and minerals represented an additional weight carried of 4,506 tons. This company and its associated company not only conveyed parcels and goods from point to point along their routes, but undertook the complete transfer from supplier to customer, and arranged warehousing facilities. Train mileage was 257,460.

Total expenses were £38,258, an increase of £882, for which traffic expenses were responsible, the other items showing little change. The operating ratio was 78·095 per cent., and net receipts were £10,731, or £1,239 higher. After meeting prior charges and the preference dividend, and transferring £1,200 to reserve and renewal fund, the directors recommended a dividend of 2 per cent. for the whole year.

The report was unanimously adopted.

NOTES AND NEWS

The G.W.R. Diesel Railcar.—Over 10,300 passengers were carried by the G.W.R. streamlined railcar during its first month's running on local services between Southall, Slough, Reading, and Didcot.

The L.M.S. Hunt.—The L.M.S.R. has recently made arrangements for guests at the company's Welcombe Hotel, Stratford-on-Avon, to hunt with the North Cotswold, Warwickshire, or North Warwickshire packs, at a charge of six guineas a day, including "cap," a sound hunter, and hotel accommodation.

Road and Rail in Northern Ireland.—In the course of a debate last week in the Parliament of Northern Ireland a declaration was made by the Minister of Commerce that the Government had under consideration the whole question of co-ordinating road and rail transport, and that a measure dealing with the matter would be introduced at an early date.

Southampton's Record Month.—Southampton established a record in February by handling nearly one million tons of inward shipping. The figures show an increase of approximately 150,000 tons on those for February, 1933. The combined figures for January and February have increased by 9 per cent. compared with the same period last year.

New Dam for Leningrad.—A scheme for protecting Leningrad from floods by the construction of a dam in the Gulf of Finland has been approved by the City Council. The dam will be 14½ miles in length and will solve an important transport problem by carrying a road and a double-track circular railway route, linking Leningrad, Oramenbaum and Kronstadt. The cost of the scheme is placed at between two and three hundred million roubles.

Polish Budget.—In the 1934 budget of the Polish State Railways, 22½ million zlotys are allocated to the purchase of new locomotives and rolling stock, 2½ million zlotys for the construction of the Warsaw-Radom line, 2½ million zlotys for the construction of the Cracow-Miechow line, 4¾ million zlotys for the doubling of several lines carrying intense traffic, and 6 million zlotys towards the completion and electrification of the Warsaw suburban lines.

Station Building Development.—A measure of the residential expansion and movement of population at present proceeding in Great Britain is afforded by the fact that over 60 new stations and halts have been opened by the railways in the past two years, serving areas previously too sparsely populated to justify rail facilities. Outer London districts rank high in the list of those with new stations, due to the rapid development of housing estates. Five stations have been opened between London and Southend-on-Sea, and two others authorised.

Reading Station Time.—Reading G.W.R. station clock, which has for years been two minutes fast—in order to allow a margin for people catching trains—is to show the correct time in future.

Luxemburg Railways.—A meeting of the National Federation of Luxemburg Railways has just passed a resolution demanding the unification of the Guillaume-Luxemburg and Prince Henry Railways, and their working by the administration of the Alsace-Lorraine Railways.

Cheerful G.W.R. Poster.—A bright feature of G.W.R. publicity during the past few weeks has been the poster by Miss D. Batty, advertising the flower harvest of Cornwall and the Scillies. Special displays have been made at principal G.W.R. stations throughout the system to draw attention to this growing industry of the West.

A Layman's Criticism.—In our issue of January 12 we published a letter from Mr. G. N. Mount in which he levelled certain criticisms from the point of view of the travelling layman at the attitude adopted by the railways towards the public. Mr. Mount has now been invited by the G.W.R. Lecture and Debating Society to address its members on this subject. He will speak on "A Passenger's Criticism of British Railways" at 5.45 p.m. on March 22, in the General Meeting Room, Paddington station.

Light Railway Companies R.E. Reunion.—The annual Reunion of the 19th and 31st Light Railway Companies Royal Engineers was held at the White Horse Hotel, High Holborn, on March 10. Captain T. Barty presided, and was accompanied by Captain W. S. Burge, Lieutenant A. E. Cannon and a large number of members of both companies. Mr. T. Heritage, 5, First Avenue, Bexleyheath, Kent, was in charge of the arrangements, and he is anxious to get in touch with any member of either the 19th or 31st Company with whom he has not already communicated.

Railway Students' Association.—The fifth annual convention of the Railway Students' Association will be held in Belfast from June 15-18. In addition to the usual meetings and discussions, a programme of visits to places of railway interest has been arranged, including an inspection of the track and signalling improvements recently carried out at Greenisland, Northern Counties Committee (L.M.S.), and the colour-light installation at York Street Terminus, Belfast. The inclusive cost will not exceed £4 a head. The party will travel in both directions via Heysham. At Belfast accommodation has been reserved at the Royal Avenue Hotel. Applications to join the party should be made as early as possible to Mr. A. F. Wallis, Hon. Sec., London School of Economics, Houghton Street, Aldwych, W.C.2.

Light Diesel Railcars, L.M.S.R.—One of the three new light railcars built by Leyland Motors Limited, for the L.M.S.R., is now in service between Blackpool Central and St. Annes stations on the West Lancashire coast. These cars were described in an illustrated article published in our *Diesel Railway Traction Supplement* of February 23.

L.N.E.R. Easter Holiday Trains.—Summer tickets for Easter holidays at a penny a mile will be issued all day and every day between all L.N.E.R. stations more than 10 miles apart. As holders of summer tickets may travel by any train there will be no excursion trains except for half-day trips, but all the principal expresses will be run in several sections a few days before and after Easter.

Canadian Sleepers for Chinese Railways.—Orders for 1,100,000 ft. of creosoted sleepers to be shipped to Shanghai in March and 3,300,000 ft. for autumn delivery at Hangkow were recently received by British Columbia timber firms from the Chinese Railway Board, Nanking. This Reuters report adds that the order marks an important development in the British Columbia lumbering industry, as it is the first order for creosoted railway sleepers ever placed in this province for the Chinese market.

Oxford University Railway Society Dinner.—Nearly thirty members and guests attended the second annual dinner of the Oxford University Railway Society at the Clarendon Hotel, Oxford, on February 22. The guest of honour was Mr. V. M. Barrington-Ward, Superintendent (Western Section), Southern Area, L.N.E.R., who, in replying to the toast of "The Guests," referred to the increasing number of university graduates entering the railway service through the company's Traffic Apprenticeship Scheme, and extended a warm welcome to any prospective candidates present.

L.N.E.R. Musical Society Concerts.—Two successful concerts were given by this Society in the Usher Hall, Edinburgh, and the City Hall, Hull, on March 10 and 11. Four hundred male voices and a full symphony orchestra of 100 took part. At Edinburgh the Lord Provost, and at Hull the Lord Mayor were present. Mr. William Whitelaw, the Chairman of the L.N.E.R. and President of the Society, attended both concerts. The soloists were Miss Miriam Licette (who appeared at short notice in place of Miss Noel Eadie, who had suffered a bereavement) and Mr. John Oliver. At Edinburgh the accompanists were Messrs. Sydney Harrington and T. E. Robinson; at Hull, Messrs. Stanley E. Macy and T. E. Robinson.

Both concerts were preceded by organ recitals, that at Edinburgh being given by Mr. George Short and at Hull by Mr. Norman Strafford. The programmes were conducted by Mr. Leslie Woodgate.

Reopening of Gleneagles Hotel.—The L.M.S. Gleneagles Hotel (Perthshire) will reopen for the season on Tuesday, March 27. Special week-end tickets to include rail travel, hotel accommodation and golf at reduced rates will be issued from London, Birmingham, Liverpool, and Manchester, except during August and September.

A Railway Air Transport Manager.—An advertisement in *The Times* of yesterday announced that the services of a manager are required by the company now being formed by the four main-line railway companies and Imperial Airways Limited to operate air services in the United Kingdom. Applicants must have held a responsible commercial position and have knowledge of aircraft.

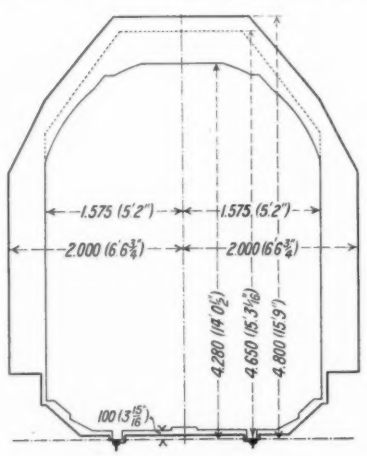
Infringement of Trade Design.—In the Chancery Division on March 2, Mr. Justice Crossman granted to The Pile Fabric Manufacturing Co. (Bradford) Limited, plaintiffs, an injunction restraining the defendants (a company carrying on business as manufacturers of furnishing fabrics), their servants and agents from infringing the plaintiffs' Registered Design No. 267,492, with costs against the defendants. The design in question was one of the Ripel-Vel range of designs of the plaintiffs' Brivelve brand of moquette.

G.W.R. Employees' Musical Festival.—A three-day musical festival is to be held at Reading by the Great Western Railway employees and their families yesterday (Thursday), to-day, and to-morrow. Over 2,250 competitors—a record—are competing in 61 classes, covering the whole range of musical and dramatic art and including vocal solos, quartettes, chamber music, choirs, instrumental, brass instruments, violin, elocution, debating, poetry, literature, scenes from Shakespeare, and one-act plays. Under the leadership of Sir Walford Davies, who is the Honorary Director of Music, the standard has been raised year by year in every branch until it now ranks among the premier events of its kind.

Austrian Railway Capital.—The report of M. Rost van Tonningen, the League of Nations representative in Austria, on the financial position of Austria in the fourth quarter of 1933, contains an abstract of the report by Brig.-General Sir H. Osborne Mance, the railway expert appointed by the League Council, on the capital outlay of the Federal Railways. General Mance expresses the opinion that only such expenditure should be regarded as capital outlay—*i.e.*, charged to the capital account—as directly or indirectly yields a commercial return. Since the formation of the Austrian Federal Railways, heavy capital expenditure has been incurred on both the State and private railways, this expenditure having been financed by loans carrying high interest and sinking-fund charges. In the comparatively prosperous year 1929, the net revenue of the Austrian Federal Railways was only just sufficient to cover a debt service amounting to 1·08 per cent. on the capital value. The real situation is even less favourable, if due account is taken of the deficiency in the provision for renewals out of the operating account. In these circumstances, General Mance is of opinion that no capital expenditure should be undertaken, unless it gave the certainty of a clear profit. The completion of the electrification of the Tauernbahn would be a profitable commercial proposition.

Fast Newspaper Train, G.W.R.—As from March 12, the Great Western Railway introduced what is believed to be the fastest newspaper train in the world. It leaves Paddington at 12.50 a.m., and is due at Plymouth at 4.50 a.m., and Penzance at 8 a.m. Between Plymouth and Penzance the train calls at principal Cornish stations, from which branch line connections are run to enable all parts of Cornwall served by the G.W.R. to be covered. Ordinary parcels traffic is also carried, which, handed in at Paddington up to midnight, can be collected by breakfast time or will be delivered on the first round in the morning.

German Structural Gauges.—The outer profile in the accompanying illustration, from Baurat Dr.-Ing. E. Metzeltin's book on steam, compressed air and internal combustion engine locomotives,* shows the minimum fixed structure gauge prescribed by the German regulations of July 17, 1928. The inner profile is the



maximum structural gauge of vehicles, or maximum moving dimensions, under the same regulations; but the higher gauges, shown dotted, is now generally permitted. Special regulations apply to the space between the rails on rack railways, and to the upper limits of current-collecting gear on electric locomotives. Below the lower horizontal profile, unsprung parts may project to within 70 mm. (2¾ in.) of the rail surface, while parts covered by the tyres, such as rail guards, brake shoes and sanding pipes, may extend to within 50 mm. (2 in.) of the rail. Even when the tyres are worn, vehicles must be within the structural gauge in the mid-position on straight track. On curves of 250 m. (820 ft.) radius and over, the inclination of locomotives may bring them outside the structural gauge for vehicles, but they must not reach the minimum fixed structure gauge. The clearance to be provided is not prescribed. Corresponding reductions in width are therefore sometimes required.

* "Lokomotiven mit Antrieb durch Dampf, Druckluft, und Verbrennungsmotoren" (Steam, Compressed-Air, and Internal-Combustion-Engined Locomotives). See review in THE RAILWAY GAZETTE of December 1, 1933, page 811.

N.U.R. and Wage Cuts.—Mr. John Marchbank, General Secretary of the National Union of Railwaymen, speaking at Dorking on March 13, said he had been instructed by his Executive Committee to ask the four group railways for an interview to review the National Wages Board Decision 119 (March, 1931), and Minute 19 of the National Railway Shopmen's Council, with a view to the restoration of the deductions in wages and conditions. Referring to the companies' notice to terminate reference of wages and conditions applications to the National Wages Board, Mr. Marchbank said that arrangements were being made for a meeting with the General Managers, and he was hopeful that a satisfactory settlement might be reached. An application would also be submitted to the London Passenger Transport Board for the restoration of the deductions agreed upon in 1931.

Reconditioned Inner Circle Trains.—The first of the reconditioned Inner Circle trains was put into service on Thursday, March 8. In place of the familiar all-brown livery of the old Metropolitan Railway, the exterior is now painted red and cream, bearing the word "Underground" on the lower panel. The redecoration of the interior has been carried out in a scheme of blue and cream, while new upholstery, new fittings and improved lighting give additional comfort. Prominent display of the word "Circle" on the front of the train and on the side of each car assists the passengers in distinguishing between the circle trains and those running on the main District lines. The whole of the Inner Circle trains will be reconditioned in a similar manner, and it is hoped that the programme covering a total of 90 cars will be completed by September. We referred editorially in our issue of February 9 last to the history of the Inner Circle service, in connection with which the London Passenger Transport Board is now seeking the repeal of the statutory obligation to maintain continuous working.

British and Irish Railway Traffic Returns

GREAT BRITAIN	Totals for 10th Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,941¾ mls.)						
Passenger-train traffic ...	366,000	367,000	— 1,000	3,615,000	3,543,000	+ 72,000
Merchandise, &c. ...	463,000	424,000	+ 39,000	4,400,000	3,861,000	+ 539,000
Coal and coke ...	274,000	265,000	+ 9,000	2,737,000	2,686,000	+ 51,000
Goods-train traffic ...	737,000	689,000	+ 48,000	7,137,000	6,547,000	+ 590,000
Total receipts	1,103,000	1,056,000	+ 47,000	10,752,000	10,090,000	+ 662,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic ...	239,000	242,000	— 3,000	2,368,000	2,358,000	+ 10,000
Merchandise, &c. ...	319,000	284,000	+ 35,000	3,166,000	2,659,000	+ 507,000
Coal and coke ...	261,000	241,000	+ 20,000	2,524,000	2,349,000	+ 175,000
Goods-train traffic ...	580,000	525,000	+ 55,000	5,690,000	5,008,000	+ 682,000
Total receipts	819,000	767,000	+ 52,000	8,058,000	7,366,000	+ 692,000
G.W.R. (3,750 mls.)						
Passenger-train traffic ...	157,000	158,000	— 1,000	1,516,000	1,520,000	— 4,000
Merchandise, &c. ...	185,000	167,000	+ 18,000	1,750,000	1,531,000	+ 219,000
Coal and coke ...	114,000	111,000	+ 3,000	1,128,000	1,098,000	+ 30,000
Goods-train traffic ...	299,000	278,000	+ 21,000	2,878,000	2,629,000	+ 249,000
Total receipts	456,000	436,000	+ 20,000	4,394,000	4,149,000	+ 245,000
S.R. (2,177 mls.)						
Passenger-train traffic ...	231,000	232,000	— 1,000	2,293,000	2,243,000	+ 50,000
Merchandise, &c. ...	62,500	60,000	+ 2,500	594,500	545,000	+ 49,500
Coal and coke ...	36,500	35,000	+ 1,500	374,500	361,000	+ 13,500
Goods-train traffic ...	99,000	95,000	+ 4,000	969,000	906,000	+ 63,000
Total receipts	330,000	327,000	+ 3,000	3,262,000	3,149,000	+ 113,000
Liverpool Overhead ... (6½ mls.)	1,037	1,050	— 13	10,841	10,305	+ 536
Mersey (4½ mls.) ...	3,948	3,820	+ 128	41,937	39,398	+ 2,539
*London Passenger Transport Board ...	513,900	—	—	17,902,600	—	—
IRELAND						
Belfast & C. D. pass. (80 mls.)	1,607	1,532	+ 75	17,390	16,985	+ 405
" " goods	545	535	+ 10	5,297	5,006	+ 291
" " total	2,152	2,067	+ 85	22,687	21,991	+ 696
Great Northern pass. (562 mls.)	6,850	1,050	+ 5,800	70,600	39,850	+ 30,750
" " goods	8,600	400	+ 8,200	80,500	39,650	+ 40,850
" " total	15,450	1,450	+ 14,000	151,100	79,500	+ 71,600
Great Southern pass. (2,158 mls.)	18,804	17,723	+ 1,081	180,510	176,074	+ 4,436
" " goods	34,072	37,127	— 3,055	314,261	293,697	+ 20,564
" " total	52,876	54,850	— 1,974	494,771	469,771	+ 25,000

*36th Week

RAILWAY AND OTHER REPORTS

Canadian Pacific Railway.—The accounts for the year ended December 31, 1933, show the following results:—Gross earnings, $114,269,688; working expenses (including all taxes), $93,407,582; net earnings, $20,862,106; add special income, $6,222,481, making a total net income of $27,084,587. After deducting fixed charges of $24,388,615, there remains a surplus of $2,695,972. After deducting contribution to pension fund, $1,438,811, the balance transferred to profit and loss and surplus revenue account is $1,257,161. Special income is before depreciation on ocean and coastal steamships. In 1932 provision of $500,000 for such depreciation was deducted from special income. In 1933 provision for depreciation has been charged to profit and loss and surplus revenue account. The special income included in the foregoing statement is as follows:—Net revenue from miscellaneous investments, including stock dividend of 10 per cent. and cash dividend of 6 per cent. from Consolidated Mining and Smelting Company, $1,306,181. Interest on deposits, interest and dividends on other securities, exchange, and results of separately-operated properties, $1,762,251. Net earnings of ocean and coastal steamship lines before depreciation, $2,178,836. Net earnings from Communications Department, hotels, office rentals and miscellaneous, $975,213. Total, $6,222,481.

Vickers Limited.—The directors recommend a dividend for the year 1933 at the rate of 4 per cent., less income tax at 5s. in the £, on the ordinary shares of the company. This dividend, if approved, will be paid on Wednesday, April 4.

Monarch Door Controller Co. Ltd.—The directors recommend a dividend of 8 per cent. for the year ended December 31, 1933. In the course of their report they state that during the past year the company has extended its activities in the marine and road transport markets in which the new Monarch air extractor has been encouragingly received.

British and Irish Railway Stocks and Shares

Stocks	Highest 1933	Lowest 1933	Prices Mar. 14 1934	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	55½	31	60*	−4½
5% Con. Prefce. ...	109¾	69½	113½*	−2
5% Red.Pref.(1950)	109¼	87½	111½*	−2
4% Deb.	108 15/16	99¼	108	—
4½% Deb.... ...	108	100¾	110½	—
4½% Deb.... ...	116	106	117½	—
5% Deb.	128	117¼	128½	—
2½% Deb.... ...	65	60	67½	+1
5% Rt. Charge ...	124	111½	127½	—
5% Cons. Guar. ...	122	103	125½*	—
L.M.S.R.				
Ord.	29⅞	12⅛	28	−½
4% Prefce. (1923)	51	17	59	−1
4% Prefce. ...	72	33¼	81*	—
5% Red. Prf. (1955)	93	47¼	101½*	−½
4% Deb.	103¼	89½	105	—
5% Red.Deb.(1952)	114	105	113½	—
4% Guar.	97¼	68⅝	100*	—
L.N.E.R.				
5% Pref. Ord. ...	22½	7¾	21¼	−1¼
Def. Ord.	10¾	4⅛	10½	−½
4% First Prefce. ...	65½	19⅝	70½*	−2½
4% Second Prefc .	40½	12¼	42½	−2
5% Red.Pref.(1955)	83¾	27	92*	−1
4% First Guar. ...	94¾	58¼	96½	−1
4% Second Guar.	89¼	48	93½	−1½
3% Deb.	77	60¼	80½	—
4% Deb.	102¾	80	104½	—
5% Red.Deb.(1947)	112	102½	111½	—
4½% Sinking Fund Red. Deb.	107½	98¾	106½	—
SOUTHERN				
Pref. Ord.... ...	71	27¾	82*	−3
Def. Ord.	24⅜	9⅜	28½	−2
5% Prefce. ...	107 11/16	74	113½*	−2
5% Red.Pref.(1964)	107¾	78⅞	113*	—
5% Guar. Prefce.	124¼	102¾	125½*	—
5% Red.Guar.Pref. (1957)	115⅝	103½	115½*	—
4% Deb.	107½	96¾	107	—
5% Deb.	126½	114¼	127½	—
4% Red. Deb. 1962–67	107¼	100	106½	—
BELFAST & C.D.				
Ord.	6	4	5	—
FORTH BRIDGE				
4% Deb.	99½	95½	100½	—
4% Guar. ...	98½	94	100½	—
G. NORTHERN (IRELAND)				
Ord.	7½	3½	5	—
G. SOUTHERN (IRELAND)				
Ord.	28	16	24½	−¼
Prefce.	24	12⅛	20	—
Guar.	42	16⅝	44¼	—
Deb.	60	30⅞	62	—
L.P.T.B.				
4½% "A" ...	117⅞	112	118½	—
5% "A"	127¼	119¼	127	—
4½% "T.F.A." ...	111¼	106	109½	—
5% "B"	122½	114	121½	—
"C"	86¾	74½	78	+½
MERSEY				
Ord.	16¼	5	13*	—
4% Perp. Deb. ...	83	63⅞	86½	+1
3% Perp. Deb. ...	62	51	65½	—
3% Perp. Prefce....	50⅝	27	50½*	—

* ex-dividend.

CONTRACTS AND TENDERS

The Gloucester Railway Carriage & Wagon Co. Ltd. has secured an order from the Sudan Government Railways for four carriage bogies to be fitted with roller bearings for use with the sleeping car underframes, to which reference was made in last week's issue of THE RAILWAY GAZETTE.

Kitchen & Wade Limited has received an order for one motor-driven heavy duty boiler radial drilling machine from the Buenos Ayres Western Railway.

Dean, Smith & Grace Limited has secured an order from the Buenos Ayres Western Railway for one motor-driven tool room lathe, 16-in. swing.

Webster & Bennett Limited has secured an order for one motor-driven duplex high power 36-in. boring and turning mill from the Buenos Ayres Western Railway.

Henry Berry & Co. Ltd. has received an order from the Buenos Ayres Western Railway for one self-contained hydraulic accumulator to feed a spring plant and a 100-ton boiler shop press.

Alfred Herbert Limited has secured orders from the Buenos Ayres Western Railway for one Herbert No. 17 universal tool and cutter grinding machine, one No. 13 hexagon turret lathe and one No. 4C capstan lathe.

The Associated Equipment Co. Ltd. has recently received orders from railway-associated road transport operators as follow :—

East Midland Motor Services Limited : One Regal single-decked bus (repeat order).

Highland Transport Co. Ltd. : One oil-engined Regal single-decked bus (repeat order).

London Passenger Transport Board : 661T and 663T trolleybuses.

The Egyptian State Railways Administration has recently placed the following orders :—

Vereinigte Deutsche Metallwerke (through Reichwald, London, Limited) : 4,000 kilos copper and 320 kilos brass (total value £201 2s. 11d., delivery f.o.b. Rotterdam-Antwerp), and 9,720 kilos solid drawn copper tubes (total value £515 18s. 10d., delivered f.o.b. Bremen or Antwerp).

The Egyptian State Railways Administration invites tenders as under.

Receivable in the Chief Inspecting Engineer's Office, 41, Tothill Street, London, S.W.1. :

1,470 ft. weldless steel tubes for bushing locomotive brake gear.
1,300 kilos annealed brass sheets $\frac{1}{32}$ in. × 2 ft. × 4 ft. and $\frac{1}{16}$ in. × 2 ft. × 4 ft.
30 buffers complete, standard old type.
80 helical bearing springs in nests of three for third-class bogie coaches.
Milling and involute gear cutters.

Receivable at the office of the Superintendent of Stores, Saptieh, Cairo, by May 1 :

9,400 kilos. copper round bars of sizes.

The High Commissioner for New Zealand, in conjunction with the consulting engineer, Mr. Ranald J. Harvey, has placed orders on behalf of the New Zealand Government Railways for steel rails and details as follow :—

British Guest Keen Baldwin's Iron & Steel Co. Ltd. : 3,278 tons of 70-lb. (R) B.S.F.B. steel rails and 126 tons of fishplates.
Colvilles Limited : 1,656 tons of 100-lb. (R) B.S.F.B. steel rails and 1,289 tons of 70-lb. (R) B.S. steel rails.
Lancashire Steel Corporation Limited : 2,562 tons of 70-lb. (R) B.S. steel rails.
Bayliss, Jones & Bayliss : Approx. 96 tons of fishbolts and nuts and 6 tons of fangbolts and nuts.
Earl of Dudley's Round Oak Works : Approx. 963 tons of steel bed plates.
Rivet Bolt & Nut Co. Ltd. : 278 tons of screw spikes.
Guest, Keen & Nettlefolds : 234 tons of dogspikes.
Springs & Pressings Limited : 120,200 spring washers for fishbolts.

The Chinese Government Purchasing Commission has just placed the following orders :—

For the Hangchow Kiangshan Railway—

R. G. Pickering & Co. Ltd. : 20 15-ton all-steel covered bogie goods wagons.
Hurst Nelson & Co. Ltd. : 12 bogie carriage underframes.
Craven's Railway Carriage & Wagon Co. Ltd. : spoked wheel centres and axles for wagons and rolled steel disc wheel centres for passenger coaches.
English Steel Corporation : Couplers and draft gear springs.
Westinghouse Brake & Saxby Signal Co. Ltd. : Air compressor and spares.
George Turton Platts & Co. Ltd. : Truck coil springs and spring steel.
Head Wrightson & Co. Ltd. and W. Shaw & Co. Ltd. : Cast steel axleboxes.
Robert Stephenson & Co. Ltd. : One steel firebox for 4-8-0 type locomotive.
Howell & Co. Ltd. : Steel boiler flues.

For Ministry of Railways, China—

Tees Side Bridge & Engineering Co. Ltd. : Braces for 43 kg. rails.

The following orders have recently been placed by the Crown Agents for the Colonies. In several instances more extended reference has already been made to them in this column :—

J. Stone & Co. Ltd. : Antifriction white metal.
Batteries Limited : Cells for NIFE alkaline batteries.
Stanton Ironworks Co. Ltd. : Cast iron pipes.
Rootes Limited : Commer chassis.
Worthington Simpson Limited : Condensing plant.
R. Johnson & Nephew Limited, The Shropshire Iron Co. Ltd. and Whitecross Co. Ltd. : Copper wire.
Birmingham Railway Carriage & Wagon Co. Ltd. : Ironwork for high-sided wagons.
Craven Bros. (Manchester) Limited : Milling machine.
P. & W. MacLellan Limited : M.S. angles.
D. Wickham & Co. Ltd. : Two railcar chassis and one inspection railcar chassis.
Cargo Fleet Iron Co. Ltd. : Rails and fishplates.
British Steel Piling Co. Ltd. : Raking pile frames.
Sir Wm. Arrol & Co. Ltd. : Steel cylinder piers.
South Durham Steel & Iron Co. Ltd. : Steel pipes.
Stewarts and Lloyds Limited : Steel pipes and tees.
Tees Side Bridge & Engineering Works Limited : Steelwork.
British Thomson-Houston Co. Ltd. : Switchgear.
Nasmyth, Wilson & Co. Ltd. : Tank locomotive.
General Electric Co. Ltd. : Telephone apparatus.
Standard Telephones & Cables Limited : Telephone cable.
Siemens Bros. & Co. Ltd. : Telephone switchboard and apparatus.
Churchill Machine Tool Co. Ltd. : Tool and cutter grinding machine.
Horseley Bridge and T. Piggott Limited : W.I. piles.

W. & T. Avery Limited has secured an order from the Indian Stores Department, New Delhi, for one visible indicating truck weighbridge of five tons total capacity, price Rs. 4,725, f.o.r. Shalimar, and including erection and test at site.

Further to the reference on page 228 of THE RAILWAY GAZETTE for February 9 to orders placed by the Indian State Railways Administration for wagons, we now learn that Burn & Co. Ltd. and the Indian Standard Wagon Company have secured orders for a total of approximately 1,800 wagons of various types, principally broad-gauge, for the Indian State Railways.

Alfred Herbert (India) Limited has secured orders from the Indian Stores Department, New Delhi, for a universal milling machine, a reconditioned Muir 8-in. slotting machine and a Klopp 14¾-in. high-speed shaping machine.

The Stores Purchase Committee, Government of Mysore, Bangalore, has placed orders as follow :—

The International General Electric Company : 14 oil circuit breakers 5,000 volts, 200 amps., price $991.20 c.i.f. Madras.
Brough & Co. : 500 ft. 250 cm. single conductor cable, price $335.00 c.i.f. Madras.

The South Indian Railway, through Messrs. Robert White & Partners, consulting engineers, has placed orders for wheels and axles as follow :—

Harrison & Camm : 158 pairs of metre-gauge disc wheels and axles.
John Baker & Bessemer Limited : 30 pairs of broad-gauge disc wheels and axles.

Ingersoll Rand (India) Limited has secured an order from the Indian Stores Department, New Delhi, for a coid starting crude oil engine-driven air light cum-centrifugal pumping plant with five cooling water tanks and spares, price Rs. 15,419, free delivery Ambala Cantt. station.

The Great Indian Peninsula Railway Administration has recently placed orders as follow :—

The Associated British Machine Tool Makers Limited :

One No. 3 Arbor press by John Lang & Sons Ltd., Glasgow, price Rs. 1,100 delivered f.o.r. Bombay.
One No. 2-P belt-driven plain horizontal milling machine 30 in. × 10 in. × 18½ in. by J. Parkinson & Sons, Shipley. Total price including extras, Rs. 7,748.

Alfred Herbert (India) Limited :

One 12/14 in. Ormerod crank-driven double head traversing shaping machine with crank drive to ram by Ormerod Shapers Limited. Price, including extras, Rs. 4,965.
One No. 20-C All-Service glass grinding combination machine, excluding electric motor and starter, by Henry G. Lange Machine Works, U.S.A. Price including extras, Rs. 2,010.

Sir W. G. Armstrong, Whitworth & Co. (Engineers) Ltd. :

Three type No. 203 pneumatic drills, price Rs. 340 each ; and one white metalling plant comprising one standard preheating and demetalling oven, crude oil fired, and one standard tinning bath, one 500-lb. lead capacity whitemetalling furnace, oil fired, and three fixed pyrometers. Total price, Rs. 7,865. To be supplied by Sir W. G. Armstrong, Whitworth & Co. (Engineers) Ltd., Newcastle-on-Tyne.

Richardson & Cruddas :

Four No. 5 John Bull XV1933 type riveting hammers by The Howard Pneumatic Engineering Co. Ltd., London, S.W.1. Price Rs. 153-6-0 each.
One 12½ in. centre × 10 ft. long Sa SS and Sc gap bed front feed shaft lathe with quick-change gear box, by Wilson Lathes Limited, Halifax. Price, including extras, Rs. 4,399-10-0.

The Chief Controller of Stores, Indian Stores Department (Engineering Section), New Delhi, invites tenders, receivable by the dates mentioned, as follow :—

7,500 110-kV. disc insulators required for G.I.P. Railway (March 22).
72,000 india-rubber check springs for buffers (March 26).
Railway carriage roofing materials, rate contract for period August 16, 1934, to August 15, 1935 (March 26).
Steel tubular poles required for N.W. Railway at Karachi (March 28).
9,000 zincs for Carsac cells, 9,000 sac elements for No. 2 Leclanche cells and 13,200 sac elements for No. 1 Leclanche cells (April 3).

LEGAL AND OFFICIAL NOTICES

PATENTS for Inventions, Trade Marks, Advice, Handbook, and consultations free. King's Patent Agency, Ltd. (B. T. King, C.I.M.E., Registered Patent Agent, G.B., U.S., and Canada), 146a, Queen Victoria Street, London, E.C.4. 49 years' references. 'Phone City 6161.

London & North Eastern Railway Company

NOTICE is hereby given that, for the purpose of preparing the Warrants for Interest payable on the 16th April, 1934, on the Company's 5 per cent. Redeemable Debenture Stock, the balance will be struck as at the close of business on 27th March, and such Interest will be payable only to those Stockholders whose names are registered on that date.

Transfers of the 5 per cent. Redeemable Debenture Stock should, therefore, be lodged with the Registrar of the Company at Hamilton Buildings, Liverpool Street, Station, London, E.C.2, before 5 p.m. on 27th March.

By Order,
JAMES McLAREN,
Secretary.

Marylebone Station,
London, N.W.1.
16th March, 1934.

Sudan Government

SUDAN RAILWAYS require an ASSISTANT DISTRICT TRAFFIC MANAGER, under 26 years of age, unmarried, of Public School and University education, with some experience in Traffic Working on an English or Overseas railway.

Applications will not be considered until 15th May, 1934. The successful candidate will be required to leave for the Sudan about three months later.

Initial salary £E.480 per annum (£E.1 = £1 0s. 6d.). Salaries of Sudan Government officials are at present subject to a 7½ per cent. abatement. Probationary contract for two years; free first-class passage; strict medical examination.

Applications, giving full particulars of age, education, railway experience and copies of testimonials, should be sent to THE CONTROLLER, Sudan Government London Office, Wellington House, Buckingham Gate, S.W.1, marking envelope "District Traffic Manager."

The Chinese Government Purchasing Commission

THE Commission is prepared to receive Tenders from British manufacturers only for the supply of:—

5 PASSENGER CAR UNDERFRAMES WITH BOGIES.

Tender Forms, &c., can be obtained at the offices of the Consulting Engineers, MESSRS. SANDBERG, 40, Grosvenor Gardens, London, S.W.1.

A non-returnable fee of 20s. will be charged for each set of documents.

OFFICIAL ADVERTISEMENTS.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

Coal Handling at Ports

On Tuesday last Mr. D. E. Cameron, M.I.Mech.E., Dock Mechanical Engineer (Swansea and Port Talbot), G.W.R., read a paper before the Institute of Fuel in London on "Coal Handling at Ports." He treated his subject under three headings.

Under the first heading Mr. Cameron dealt with the various types of cranes, coal hoists, and belt conveyors employed in the handling of coal. He gave particular attention to the Lewis-Hunter type crane, which is peculiar to Cardiff docks, and also described in some detail the containers, specially designed for use in connection with crane discharging, such as have been developed at Essen on the Rhine canal, and which have also been adopted as being the most expedient by the G.W.R. for bunkering the new steamer *Great Western*.

Mr. Cameron then turned, under his second heading, to the subject of the behaviour of coal under the various conditions met in the process of handling. Here he gave a detailed description of various tests that had been carried out, and from which it had been ascertained that smaller lumps of coal invariably began to collapse in structure at 672 lb. pressure, but that as the size of the lumps was increased, there was a definite upward tendency manifest in the resistance to collapse, and the minimum point for lumps over 20 lb. in weight was found to reach 1,340 lb. It was therefore assumed that the increasingly larger lumps were, in fact, structurally stronger, and that that to some extent explained the class or grading in sized coal, under which they came.

Turning finally to anti-breakage appliances, Mr. Cameron said that the vertical distance from the point of chute or belt "throw off" to the bottom of hold was the most important and severe condition that had to be encountered. The principle in practice over a number of years, where special care was desired in the handling of coal, had been the use of the anti-breakage box. The same principle had been carried out in a dozen different ways, a typical application being the anti-breakage box which was held by a crane, immediately under the point of the chute, whence, controlled by wing doors, the coal was allowed to flow, and to fill the box. The crane then lowered the box to an appropriate depth in the hold, at which point ropes anchored to the coamings became taut, opened the box door, and allowed the coal to escape into the hold. The weight of coal held by these boxes ranged from 30 cwt. in the earlier days, up to four tons as time went on. Mr. Cameron considered that the ideal appliance should fulfil the following conditions:—

1. The coal in motion should not suffer heavy impact.
2. The coal on which it is laid should not suffer.
3. The appliance should be capable of dealing with nearly the full cargo of coal to be placed in the holds, if desired.
4. The method adopted should not slow up speed of shipment, and should be capable of being rigged up without difficulty.
5. The maintenance of the appliance should not be onerous, or cause undue delays.

To try to attain these conditions, a number of refinements had been tried out. Among them were the Morison Leonard and Lowerator devices, and the Handcock anti-breakage box. Finally Mr. Cameron dealt with the Norfolk spade used in the discharging of small or duff coal from a wagon into hopper or chute, when the coal is damp or frozen.

At the conclusion of the lecture a short film was exhibited, showing in actual use certain of the appliances described.

L.M.S. (LONDON) GOLFING SOCIETY.—The seventh annual dinner of this society was held at the Midland Grand Hotel, St. Pancras, on Friday, March 9. About 65 members and guests assembled. A musical programme followed the dinner and trophies competed for during 1933 were presented to the winners. Mr. H. V. Mosley, Captain of the Society, was in the chair, and among the members present were Messrs. T. E. Argile, A. W. Donaldson, J. F. Gee, F. A. C. Leigh, E. J. H. Lemon, G. Morton, F. Roberts, T. W. Royle, W. A. Stainer, S. J. Symes, and E. Taylor. Visitors included Messrs. A. L. Castleman, W. H. C. Clay, R. G. Davidson, Alexander Eddy, Everard Greene, Captain J. W. Harris, R.N.R., C. H. Newton, J. Procter Smith, H. L. Thornhill, and W. K. Wallace.

A RAILWAY BROADCAST.—A novel feature of the "all-railway" programme broadcast by the B.B.C. from the North Regional station on March 10 was a microphone tour of Crewe station, control offices, and running sheds. Commentaries on various phases of work at Crewe were given by Mr. C. R. Byrom (Chief Operating Manager, L.M.S.), and Mr. P. McCallum (District Locomotive Superintendent). Among other L.M.S. officers who participated in the broadcast were Mr. L. D. Ford (Divisional Superintendent of Operation), Mr. C. Phizackerley (Assistant Divisional Superintendent of Operation), Mr. A. P. Hunter (Divisional Passenger Controller), Mr. L. P. Ball (Divisional Freight Controller), and Mr. W. Paterson (Divisional Superintendent of Motive Power).

Railway Share Market

The stock and share markets have been less active, and there are signs that operators are closing their commitments preparatory to the Easter holiday period when markets are expected to be dull in tone. Home railway stocks, being among those stocks which present at current quotations most profits to investors on capital account, have not unexpectedly been subject to some realisation. The market has proved more receptive to the offer of stock than might have been anticipated, and the downward movement has not gone very far.

Given a period of fine weather at Easter, it is being anticipated that interest in Southern stocks, especially the preferred ordinary, will be renewed. Some of the preference stocks were subject to profit-taking, but London & North Eastern junior issues appeared to maintain their attractions for those investors who are prepared to lock up stock against a big recovery a year or two hence. One of the interesting movements has been in London Transport Board's "C" stock, which has become as active as the most speculative stocks in the home railway market. Following the heavy fall last week caused by the comments of Lord Ashfield on the capital structure of the board, there has been a disposition this week for more encouraging views to be taken of the prospects of the stock, and after opening on Monday with business at 75½ there was a gradual improvement to over 77. Attention is being given in one quarter to the significance (as a long term indicator) of the statement by Mr. Pick that a par value for the "C" stock is essential if the board were to be placed in a position to raise fresh capital on cheap terms. The market is now talking about some supplementary rearrangement by which this improvement may be effected. In the Colonial railway group there was considerable fluctuation in the prices of Canadian Pacific common and preferred issues on the details of the results for the past year. There is considerable conflict of opinion in the Stock Exchange regarding the prospects of the company based on the past year's financial results. It is suggested that, whilst the company is making a strong effort to overcome the particular difficulties which confront it, the shareholders may have to take a longer view of dividend prospects than has been anticipated from the recent trend of traffic receipts.

Some indication of the outlook is expected to be given at the meeting in Montreal on May 2. Foreign railway stocks have been on the weak side. Buenos Ayres Western and Buenos Ayres Great Southern debenture stocks were active and in good request. Argentine North Eastern "C" stocks fell two points. Salvador 5 per cent. mortgage debentures were marked down five points to 20-30; the last bargains done in the stock were at 29½ and 30 last September.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1933-34	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1933	No. of Week	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1933	Prices: Lowest 1933	Prices: Mar. 14, 1934	Prices: Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	830	11.3.34	15,010	+ 3,810	10	126,910	91,030	+ 35,880	Ord. Stk.	26	11¾	25	Nil
	Argentine North Eastern	753	10.3.34	10,200	+ 700	36	364,800	393,600	− 28,800	,,	14½	5	9½	Nil
	Argentine Transandine	111	—	—	—	—	—	—	—	A. Deb.	55	40	50	8
	Bolivar	170	Feb., 1934	6,400	− 1,200	8	12,950	15,200	− 2,250	6 p.c. Db.	10	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	15	11	13	37/8
	Buenos Ayres & Pacific	2,806	10.3.34	140,000	+ 10,000	36	3,717,000	3,839,000	− 122,000	Ord. Stk.	26	97/16	15	Nil
	Buenos Ayres Central	190	4.3.34	8,119	+ 384	36	351,561	329,715	+ 21,846	Mt. Db.	30	10	25½	Nil
	Buenos Ayres Gt. Southern	5,085	10.3.34	262,000	− 11,000	36	7,197,000	7,183,000	+ 14,000	Ord. Stk.	44½	21½	31½	Nil
	Buenos Ayres Western	1,926	10.3.34	75,000	—	36	2,300,000	2,410,000	− 110,000	,,	34½	15¾	23	Nil
	Central Argentine	3,700	10.3.34	‡175,000	—	36	5,922,000	6,630,000	+ 708,000	,,	28½	15	20½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	18	10	14½	Nil
	Cent. Uruguay of M. Video	273	10.3.34	17,687	+ 3,310	36	591,891	549,542	+ 42,349	Ord. Stk.	20	8	15	Nil
	Do. Eastern Extn.	311	10.3.34	3,565	+ 22	36	117,182	117,793	− 611	—	—	—	—	—
	Do. Northern Extn.	185	10.3.34	2,206	− 63	36	63,913	68,909	− 4,996	—	—	—	—	—
	Do. Western Extn.	211	10.3.34	1,798	+ 601	36	59,317	50,004	+ 9,313	—	—	—	—	—
	Cordoba Central	1,218	10.3.34	38,000	+ 1,000	36	1,501,000	1,501,000	—	Ord. Inc.	9¼	2½	5	Nil
	Costa Rica	188	Nov., 1933	18,534	− 3,195	21	99,724	107,788	− 8,064	Stk.	29	20	26	7 11/16
	Dorada	70	Jan., 1934	11,700	+ 3,900	4	11,700	7,800	+ 3,900	1 Mt. Db.	76½	68¾	80	7½
	Entre Rios	810	10.3.34	11,800	+ 200	36	568,400	557,900	+ 10,500	Ord. Stk.	26½	9	18½	Nil
	Great Western of Brazil	1,082	10.3.34	8,900	− 3,600	10	106,300	156,100	− 49,800	Ord. Sh.	23/6	1/2	5/4	Nil
	International of Cl. Amer.	794	Jan. 1934	$460,733	+ $30,823	4	$460,733	$429,910	+ $30,823	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	1/2	1/16	1/2	Nil
	La Guaira & Caracas	223/4	Feb., 1934	3,180	− 2,950	4	7,580	13,240	− 5,660	Stk.	16	10	12½	Nil
	Leopoldina	1,918	10.3.34	34,803	+ 6,890	10	235,851	254,319	− 18,468	Ord. Stk.	20¼	10	12	Nil
	Mexican	483	7.3.34	$226,000	+ $55,000	9	$1,976,400	$1,660,800	+ $315,600	,,	3	1/2	2½	Nil
	Midland of Uruguay	319	Feb., 1934	9,313	+ 1,790	34	77,993	67,947	+ 10,046	Ord. Stk.	2	1	2	Nil
	Nitrate	411	28.2.34	10,869	+ 4,441	8	52,992	14,542	+ 38,450	Ord. Sh.	78/6	11/16	31/4	Nil
	Paraguay Central	274	10.3.34	2 920	+ 240	36	114,920	97,900	+ 17,020	Pr. Li. Stk.	72	49½	70	8 5/16
	Peruvian Corporation	1,059	Feb., 1934	51,532	+ 7,094	34	439,952	440,559	− 607	Pref.	15¼	5	14	Nil
	Salvador	100	3 3.34	2,805	− 1,980	36	44,966	95,541	− 50,575	Pr. Li. Db.	70	66½	70§	7⅛
	San Paulo	1531/2	4.3.34	33,917	+ 2,500	9	259,976	277,951	− 17,975	Ord. Stk.	102	68	81	2½
	Taltal	164	Feb., 1934	7.015	− 5,675	34	46,215	28,215	+ 18,000	Ord. Sh.	1¾	3/4	1 11/16	5 5/16
	United of Havana	1,365	10.3.34	37,676	− 138	36	558,768	609,203	− 50,435	Ord. Stk.	8	2	5	Nil
	Uruguay Northern	73	Feb., 1934	1,086	− 70	34	9,391	12,630	− 3,239	Deb. Stk.	6	31/2	5	Nil
Canada	Canadian National	23,750	7.3.34	615,494	+ 132,145	9	5,233,053	4,319,112	+ 913,941	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	—4 p.c.	Perp. Dbs.	60½	38	68	5⅞
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	99¾	85	99½	4
	Canadian Pacific	17,018	7.3.34	455,000	+ 58,200	9	3,963,200	3,351,400	+ 611,800	Ord. Stk.	22⅛	11	17	Nil
India†	Assam Bengal	1,329	10.2.34	30,120	+ 5,417	45	1,073,604	1,084,842	− 11,238	Ord. Stk.	79	70	76½	3 5/16
	Barsi Light	202	17.2.34	2,287	− 450	46	132,390	126,487	+ 5,903	Ord. Sh.	101¾	70	99½	6
	Bengal & North Western	2,113	17.2.34	49.427*	− 8,881	20	916,451	945,892	− 29,441	Ord. Stk.	292	240	270	5 5/16
	Bengal Dooars & Extension	161	17.2.34	2.514	+ 303	46	272,490	269,796	+ 2,694	,,	127	119	125	5⅝
	Bengal-Nagpur	3,269	10.2.34	129 975	+ 10.885	45	4,775,653	4,418,871	+ 356,782	,,	97¼	83½	99½	4
	Bombay, Baroda & C. India	3,089	3 3 34	199,875	+ 26,700	48	7,289.250	7,021,350	+ 267,900	,,	112	107	110½	5 7/16
	Madras & South'n Mahratta	3,230	10 2.34	123 ,375	+ 6,365	45	4,836.242	4,681 349	+ 154,893	,,	127	114¼	123½	7 5/16
	Rohilkund & Kumaon	572	17.2.34	12,152	− 751	20	187,111	179,236	+ 7,875	,,	260	225	251	6
	South India	2,526	10 2.34	77,556	− 8,451	45	3,495,450	3,565,891	− 70.441	,,	119½	112	116½	6⅞
Various	Beira-Umtali	204	Dec., 1933	49.418	+ 13,362	12	149,024	116,708	+ 32,316	—	—	—	—	—
	Bilbao River & Cantabrian	15	Dec., 1933	988	+ 48	52	18,980	21,553	− 2,573	—	—	—	—	—
	Egyptian Delta	621	28.2.34	4,712	− 542	48	217,789	238,192	− 20,403	Prf. Sh.	131/32	13/4	2	Nil
	Great Southern of Spain	104	3.3.34	2,178	− 232	9	18,968	19,562	− 594	Inc. Deb.	4	3	5½	Nil
	Kenya & Uganda	1,625	Aug., 1933	159,746	+ 12,456	35	1,523,550	1,273,216	+ 250,334	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	53	33½	44½	7⅞
	Mashonaland	913	Dec., 1933	90.716	+ 35,205	12	277,053	178,354	+ 98,699	1 Mg. Db.	91¾	42	94½	5¼
	Midland of W. Australia	277	31.1.34	15 353	+ 1,292	30	95,749	91,747	+ 4,002	Inc. Deb.	89	70	96½	4⅛
	Nigerian	1,903	27.1.34	68,458	+ 19,655	44	1,446,702	1,513.507	− 66,805	—	—	—	—	—
	Rhodesia	1,538	Dec., 1933	149,133	+ 43,759	12	465,925	319,334	+ 146,591	4 p.c. Db.	98½	80¾	100	4
	South African	13,151	17.2.34	457,961	+ 42,881	47	20,937,404	18,175,958	+2.761,446	—	—	—	—	—
	Victorian	6,172	Dec., 1933	731,550	− 113,258	25	4,307,656	4,520,111	− 212,455	—	—	—	—	—
	Zafra & Huelva	112	Nov., 1933	10,926	+ 149	47	123,826	120,955	+ 2,871	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16. * Traffic interrupted by earthquake.
† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. ‡ Average rate of exchange for the week:—This year 31 15/16. Last year 40 31/64.

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